EXHIBIT 1

I-195 WASHINGTON BRIDGE PROVIDENCE

PROVIDENCE, RHODE ISLAND

Bid# 7611889

BEST VALUE DESIGN-BUILD PROCUREMENT FOR BRIDGE GROUP 57T-10: I-195 WASHINGTON NORTH PHASE 2

REQUEST FOR PROPOSALS

PART 2

TECHNICAL PROVISIONS

March 17, 2021

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

I-195 WASHINGTON NORTH PHASE 2

PROVIDENCE, RHODE ISLAND

DESIGN-BUILD PROCUREMENT

REQUEST FOR PROPOSALS

PART 2- TECHNICAL PROVISIONS

Section 1. Project Requirements and Provisions for Work

1.1. Project Management

1.1.1. Project Overview

The project (the "Project") includes rehabilitating and partially widening the superstructure of the Washington Bridge No. 700 and the Gano Street off-ramp; restriping the I-195 westbound mainline between Broadway in East Providence and the Washington Bridge to maintain four (4) lanes throughout the corridor, eliminating the current lane drop; adding an exit ramp to connect I-195 westbound to Waterfront Drive in East Providence; and constructing a new bridge to carry traffic from Gano Street to I-195 westbound (Gano St. on-ramp). These infrastructure improvements will be undertaken to restore structural sufficiency and to alleviate chronic traffic congestion on Interstate 195 from the Massachusetts state line to the South Main Street exit. The Project includes partial demolition and rehabilitation of selected bridges, construction of new bridges, roadway reconstruction, retaining wall construction and other associated work. The bridges and retaining walls will be as required to support the proposed roadway layouts required for the final highway design.

The BTC includes but is not limited to: partial bridge demolition, bridge rehabilitation, bridge construction, roadway construction and reconstruction, retaining wall construction, drainage construction, landscaping construction, temporary and permanent utility relocation, handling and disposing of contaminated materials, and modification to and installation of traffic signals.

The DB Entity shall determine the final location, layout, type and dimensions of all elements of the bridges required to accommodate the roadways required to provide a final design that meets all of the requirements of the RFP and all applicable design codes, guides and specifications. All bridges, retaining walls and other structures required to support the final design shall be included in this project as part of the Proposal and be included in the Price Proposal.

Some or all of the work may be built using Accelerated Bridge Construction techniques as required to meet the construction schedule and traffic maintenance requirements. Accelerated Bridge Construction methodologies that shall be considered for use on this project include but are not limited to the use of Prefabricated Beam Units (PBUs), prefabricated or precast concrete elements, lateral slide methods, self-propelled modular transporters and other applicable methods.

Historical plans for the existing bridges are provided in Appendix B. The BTC is provided in Appendix B.

Construction of the highway improvements and rehabilitation and new construction of the bridges will proceed in stages. In each stage, all traffic on Interstate I-195, ramps, and all other roadways shall be maintained as required in the BTC, unless specifically stated otherwise in this RFP.

Construction of certain work may be limited to a certain number of consecutive calendar days for each stage. During each specified period, the DB Entity shall complete the identified items of work as specified in the RFP. The completion of certain items of work may be associated with a milestone for which an incentive may be offered for early completion, or disincentives and/or liquidated damages may be assessed for late completion. Milestones, Incentives and Disincentives are outlined in Section 8 of Part 2 of the RFP. Liquidated Damages are outlined in Section 108.8 of Part 3 of the RFP.

1.1.2. **General**

The DB Entity shall plan, schedule and execute all aspects of the Work and shall be responsible for coordinating its activities with all parties directly affected by the Work. The DB Entity shall document, and report all Work in accordance with the Contract requirements. Members of a DB Entity/Joint Venture cannot be hired as a subcontractor by the DB Entity to perform out-of-scope work. The DB Entity shall be responsible for distribution of all plan sets to the State and other parties.

The DB Entity is responsible for the final design of all aspects of the Project. The DB Entity shall comply with the requirements outlined in RIDOT's BUILD Grant Application including but not limited to, safety improvements (crash reduction) and traffic operational improvements (travel time reduction) as outlined in the BUILD Grant Application document included in Appendix B. Per direction from the State and subsequent to the BUILD Grant Application approval, the I-195 WB to Gano Street off-ramp movement will be maintained as part of the proposed project improvements.

1.1.3. **Project Management**

The DB Entity shall, at all times, provide a Project Manager (who has been approved by the State) who will have full responsibility for the prosecution of the Project and will act as the primary point of contact in all matters on behalf of the DB Entity. Their responsibilities shall include oversight and integration of design, procurement, and construction, as well as Quality Control for all activities. The DB Entity shall not change this manager without the prior written approval of same by the State; whether or not to give such approval will lie in the State's sole discretion, however the State and DB Entity will coordinate and cooperate if Key Personnel changes are necessary. In the event that the DB Entity fails to obtain approval of a replacement before the existing Project Manager leaves, the DB Entity shall not be entitled to receive any progress payments hereunder until such time as the approved replacement has started work on the Project.

1.1.4. **State's Role**

The State's role in the Project will be similar in structure to its role in Design-Bid-Build projects. The State intends to perform Project oversight, design acceptance or approval and construction acceptance and independent assurance actions for the limited purpose of ensuring that the DB Entity's work meets the requirements of the RFP and the Contract. State oversight activities will include design reviews, design acceptance/approval at key design milestones (*i.e.*, Semi-Final Design Submittal, Final Design Submittal) and construction independent assurance and acceptance. The State will also serve as a liaison with regulatory agencies in connection with the DB Entity's application for Environmental Approvals and Clearances and amendments thereof. The State's performance of its role is with a full reservation of all its rights and the State does not waive the same. None of the State's role in the Project, however, shall relieve the DB Entity from its obligations as defined in the RFP and Contract.

1.1.5. **Federal Highway Administration's (FHWA) Role**

This project is Federally funded with Title 23 funds. The Contractor shall conform to all Federal Laws and Regulations including but not limited to those reference herein. FHWA will conduct oversight reviews to ensure compliance with FHWA rules and requirements.

1.2. **Reference Documents and Standards**

Reference Documents and Standards provide the basis for the design and construction of the Project.

1.2.1. **BTC-Related Reference Documents**

The BTC, including preliminary design drawings and Special Provisions, has been developed in order to define the State's minimum baseline design requirements, which shall be met or exceeded by the DB Entity's final design. In the event that the DB Entity, through design development, proposes changes to its Technical Proposal or the BTC requirements, it shall submit to the State a request for change and include in it a written justification in their technical submission for the State's review and concurrence before incorporating any changes into a Design Submission. Proposed changes to the accepted proposed design will be considered a construction change and will not be considered "design development". Any proposed changes to the BTC that are not demonstrated to be equal or better than the BTC or that are, in the sole opinion of the State, found not to be in the best interest for the State, will be rejected. Any proposed changes to the BTC that are found to be in the best interest for the State will be approved.

All attached historical documents, design reports; preliminary design documents, and BTC documents shall be considered for reference only, except when specific requirements included therein are referenced in the RFP. It shall be the DB Entity's responsibility to evaluate the information included in the reference documents when developing the final design. The DB Entity acknowledges by receipt of such documents that it explicitly understands that while these documents have been advanced to the level indicated by the State, the DB Entity shall be required to provide a final, complete Project design that is stamped, sealed and certified by its own Professional Engineers of Record, Land Surveyor of Record, and Landscape Architect of Record, for review and approval by the State and possible third parties. The Professional Engineers, Land Surveyor, and Landscape Architect shall be registered in the State of Rhode Island and Providence Plantations.

Revisions or additions to information in the reference documents being provided may be necessary, based on comments received during ongoing reviews. The State makes no representations as to the accuracy or completeness of information contained in any documents not obtained from the State and will not be responsible in any way for the DB Entity's reliance on or use of the contents of such documents. See Appendix B for a complete listing of Project-specific reference documents.

1.2.2. **AASHTO, State, and Other Applicable Standards**

AASHTO, State, and other reference standards are applicable to the final design and construction documents to be developed by the DB Entity, including, but not limited to the State's **LRFD Bridge Design Manual, Highway Design Manual, Traffic Design Manual, Standard Specifications for Road and Bridge Design, Design Policy Memos, To All Consultants Memos, Manual on Uniform Traffic Control Devices (MUTCD), and any applicable Specifications, Supplements and Special Provisions** and all other applicable documents. Some or all of these documents are available on the State's website. (Please note: these manuals should not be considered to represent a comprehensive list of all required documents. Additional specifications and State Standards may apply to the given matter.)

All work performed under this Contract (as it may be amended) shall be in conformance with AASHTO and State standards, except to the extent that the Contract specifically allows exceptions stated within this RFP. In the case of a conflict between different individual standards, the more stringent requirements shall apply. Where dates are not specified, the most current version in effect as of the issuance of the Notice to Proceed shall apply.

All BTC plans have been prepared using AutoCAD. AutoCAD files have been advanced beyond the plotted BTC plans. The plotted (.pdf) BTC plans shall govern design criteria for final design. The State does not claim that all BTC Drawings conform entirely to RIDOT CAD standards. The DB Entity shall prepare Drawings in accordance with the State's Standards. Any changes to the selected standards, including adjustments made as required for Building Information Modeling software (if used), shall be submitted and approved by the State.

1.2.3. **Preliminary Design Documents**

A preliminary BTC design for the Project has been completed by the State. The BTC has been developed to a pre-30% design.

The DB Team shall only be able to rely on these Preliminary Design Documents for conceptual design purposes. Information shown on Preliminary Design Document plans, including but not limited to dimensions, clearances, elevations, structural member sizes, and details shall not be relied upon for bidding purposes or for Final Design.

1.2.4. **Historical Documents**

Historical documents are available for the bridge structures and adjacent roadways. This includes, but is not limited to, the original bridge plans, roadway plans, and bridge inspection reports. Construction records from the Phase 1 construction project will be made available to prospective bidders if requested through the State's Public Records Requests process. However, any such Public Records Requests shall not relieve the proposer from meeting all required procurement deadlines within this RFP.

1.3. **Administration and Coordination**

1.3.1. **Introduction**

Public involvement and communications are essential to the Project's development and construction. The State has worked with stakeholders and elected officials on this Project to facilitate open communication and information sharing about the Project. To continue this outreach and to fulfill related commitments, the State anticipates that extensive coordination and public outreach shall be required during the final design and construction of the Project.

The DB Entity shall work closely with the State to engage the public and communicate Project information. The State will use available resources to communicate Project information including, but not limited to, broadcast and print media, variable message signs, State-maintained dedicated Project website, social media, existing State websites and other State of Rhode Island websites, fliers, fact sheets, newsletters, email, presentations, briefings, meetings, and signs. The DB Entity will have an important role in public involvement and communications and shall support the State by preparing materials, presentations, and any other media required for communicating Project information to all interested persons, groups and government organizations. All materials, where appropriate, shall incorporate the Project's message points, which will be provided by the State. All costs for the preparation of these materials and the DB Entity's participation shall be included in the Design-Build Lump Sum price. The materials shall include, at a minimum:

a. Information for bi-weekly construction updates, including fourteen (14) day look-ahead schedules, detailed updates for the upcoming two weeks: including anticipated problems and any changes in information to be provided to the public.

b. Photographs of Project activities for posting on the Project website immediately after completion of milestones (such as completion of substructure, superstructure erection,

Stage I construction, etc.). The DB Entity shall provide photographs of Project activities to the State for its use throughout the Project.

c. Presentation slides, presentation boards, and graphics for one Public Information Meeting.

d. Daily traffic updates and alerts.

e. Detour maps of each detour route for use on the website and distribution to media, stakeholders' groups, etc. Various graphics and animations of the traffic phasing for use in public outreach. A sample of the type of animation can be found at the following links

- https://www.youtube.com/watch?v=S1IjZ_K4XKM [youtube.com]
- https://youtu.be/wCuP_BehXFs [youtu.be]
- https://www.youtube.com/watch?v=loUozzu7JNE

1.3.2. **Briefings and Meetings.**

The DB Entity shall:

a. Attend bi-weekly coordination meetings with the State and other stakeholders as determined by the State and shall record and submit meeting minutes to the State for approval.

b. Prepare and provide briefings and meetings for interested neighborhood groups, business and professional groups, and other organizations.

c. Prepare for and attend meetings with stakeholders, construction meetings, Semi-Final design public informational meetings, and meetings before milestones and major traffic changes; and prepare and provide graphics, other visual aids, and handouts for public meetings and hearings.

1.3.3. **Public Information.**

The DB Entity shall:

a. Provide information and content for the State's Project website to be maintained by the State, including announcements for public meetings, agendas, presentations, and minutes, plans, detour routes, etc. that may be posted by the State on the Project website.

b. Provide photographs and video footage of Project activities to the State throughout the Project for posting on the Project website, especially right after completion of milestones.

c. Information for bi-weekly construction updates, including ninety (90) day look-ahead schedules, detailed updates for the upcoming two weeks; including anticipated problems and any changes in information to be provided to the public.

d. Develop a public communications plan for submittal and acceptance by the State. This plan shall include but not be limited to updating the public on the status of the Project; coordinating briefings (for elected and municipal officials, for example); and providing strategic planning, coordination, and staffing for public meetings.

e. Develop a Project Public Involvement Plan to keep stakeholders informed during all stages of design and construction.

f. Provide input and content as requested by the State for public outreach.

1.3.4. **Public Information Materials.**

The DB Entity shall:

a. Produce multilingual (English and Spanish minimum) newsletters and fact sheets at key points in the Project; and shall design a template for a general Project fact sheet, providing a draft copy to the State for its approval. The goal of these materials will be to provide the basic information about the Project to the public and a record of the Project for the future.

b. Prepare presentation boards, slide shows, and displays.

c. Prepare “camera-ready” detour maps of each detour route for distribution to media, stakeholder groups, etc. and for use on the Project website.

1.3.5. **Police, Fire, and Emergency**

The DB Entity shall coordinate with the State the preparation of updates on Project work and information, to be forwarded to the State for formal coordination with State Police, local Police, Fire, and Emergency Responders from the Cities of Providence, East Providence and surrounding cities and towns. The DB Entity, along with the State, shall be required to hold meetings with the emergency response personnel listed above, in order to review with them upcoming construction work and Maintenance and Protection of Traffic (MPT) plans. These meetings shall occur at least thirty (30) days prior to any major construction sequence. At any of the Emergency Personnel's request, these meetings may occur more frequently. The DB Entity shall also coordinate with Emergency Responders for adjacent projects.

1.3.6. **Coordination with Other Projects**

In addition to the requirements of Section 105.07 of the General Provisions (Part 3), during the construction phase of the Project the DB Entity shall be required to coordinate its efforts with local and government agencies including the municipalities of Providence, and East Providence, community groups, adjacent land owners, utility companies and other planned State projects that may be under design or construction during the construction phase of the Project. The coordination shall include, but is not limited to, providing sufficient notice of roadway closures and/or other significant operations prior to their occurrence. The DB Entity shall review design plans and shall coordinate and monitor the work of any entity performing or proposing work adjacent to the Project. The DB Entity shall anticipate allocating responsible personnel to this aspect of the Project.

The Rhode Island State Transportation Improvement Program (TIP) is depicted graphically at the following site:

(http://ridoa.maps.arcgis.com/home/index.html)

This website contains information on adjacent projects. It is the responsibility of the Proposer to seek out and identify with any other entity’s work on other public or private projects in the area on and adjacent to the Site.

The DB Entity shall be responsible to coordinate its work on the Project with any other entity’s work on other projects in the area on and adjacent to the Site. At times it may be necessary for the DB Entity to allow adjacent State project’s contractors coordinated access to and through the Project area. This will not be deemed justification for a Project time or cost claim or delay unless access to the project is denied for more than 2 consecutive calendar days or a total of 10 days in a calendar year.

The DB Entity shall coordinate with the Henderson Bridge Replacement Project. That project will be utilizing Waterfront Drive and/or Valley Street as part of their traffic detour routes. As such, the

proposed connector street between Valley Street and Waterfront Drive shall be completed and open to traffic before the closure of the southern end of Valley Street will be allowed.

The DB Entity shall coordinate with the Tolling DB Contractor for the proposed toll gantries including the location of any service connections and drilled shaft foundations to be located in the median and outside of the shoulders of I-195. The toll gantry installation is complete and final design drawings for that project can be found in Appendix B. The DB Entity shall give the Tolling DB Contractor 30 days advance notice of any lane shifts and anticipated durations of lane shifts and shall coordinate time for the Tolling DB Contractor to access the work zone to shift and test tolling equipment. The Tolling DB Contractor is expected to move the tolling gantry equipment at the same time as the DB Entity is performing the lane shifts near and under the gantry. Both DB teams will be required to work simultaneously in order to maintain tolling operations at all times.

Any alterations or deviations from the traffic management plan due to conflicts with an adjacent project's MPT plan shall be coordinated by the DB Entity with the State.

1.3.7. **Coordination of Traffic Officers**

The DB Entity shall coordinate the satisfaction of all Project MPT requirements through the State's field representative. The State handles traffic persons in various ways.

State and Local Police Officers shall be managed in accordance with the Standard Specifications, Article 9.70 as revised by this RFP, with respect to orders and payments issued to them.

After the DB Entity submits and the State approves the number of State or Local Police to be used, in accordance with the Standard Specifications, the State will engage the appropriate State or Local Police Officers. The State will cover the costs for the approved services of State or Local Police Officers by making a direct payment for them to the Department of Emergency Services and Public Protection. Payment for State or Local Police Officers used by the DB Entity for its convenience, not approved by the State, is the responsibility of the DB Entity. No separate payment item for State or Local Police Officers is included in the Contract.

Any costs associated with coordination of State or Local Police Officers shall be included under the DB Lump Sum Price.

Other Traffic persons including but not limited to, Uniformed Flaggers, shall be included under the DB Lump Sum Price and no separate payment item for Traffic persons or their overtime is included in the Contract.

1.4. **Risk Management**

The following are potential significant risks that have been identified by the State. Proposers shall address in their Proposals how they will mitigate these risks. Proposers shall also identify any other significant Project risks and propose mitigation of any such risks.

1.4.1. **Utilities**

There are many existing utilities that pass through the Site, including water, sewer, electric, gas, cable, fiber optics, ITS, and others. The BTC, survey mapping and historical construction drawings show those utilities that have been identified within the Project limits. The suggested sequence of construction is designed to minimize the potential for detrimental effects on these utilities within the constraints of the Project. The selected Proposer shall be charged with preventing such Project effects. Placement of equipment and materials over existing underground utilities could present a risk of damage to utilities.

As with any large project to be constructed, there is a potential that active utility lines may be encountered that have not yet been identified by or to the State. To mitigate this risk, the State has performed a preliminary utility investigation. Record drawings have been obtained and examined. The information obtained from this investigation is provided on the BTC Plans, but it was supplied by third parties and should be considered only approximate. The DB Entity shall perform its own research and due diligence in an effort to identify all active utilities prior to commencement of construction activities.

1.4.2.**Right of Way**

Existing right-of-way boundaries and easements have been identified by the State in the BTC. Access to land outside the limits is not guaranteed. Temporary construction easements and/or permanent easements may be required to complete the Project. The DB Entity is responsible for the acquisition of any property rights deemed by the State to be for its convenience (*i.e.,* staging, storage, etc.) at no additional cost to the State. See the Right-of-Way section later in this part for further detail.

1.4.3.**Geotechnical**

The following items represent potential risks with regard to geotechnical aspects of the Project:

a. Settlement of any proposed new structures
b. Global stability failure associated with staged removal of structures and embankments
c. Global stability and settlement of proposed embankments and retaining walls located in areas underlain by uncontrolled fill and organic soils
d. Discovery of unanticipated utilities in excavations for foundations
e. Damage to existing buried utilities due to weight of new fill
f. Movement of existing substructures.
g. Encountering unknown subsurface conditions or obstructions
h. Damage to existing structures and utilities due to settlement or construction vibrations
i. The DB Entity shall assume a constraint of zero-inch settlement and zero stress increase (above existing) for all utilities within the constraints of the Project area. As such, the cost and time for all mitigation proposed for these geotechnical risks, as listed above, shall be completely assumed by the DB Entity at no additional cost to the State.

1.4.4.**Construction/Traffic Sequencing and Staging**

Conceptual Sequence of Construction Staging plans have been developed in the BTC. The DB Entity shall be responsible for obtaining required approvals from any affected third parties and RIDOT if modifications to the plans are made. A BTC Draft TMP is included in the Appendix including attachments that specify the minimum number of lanes and shoulders to remain open to traffic at all times. A traffic management plan (TMP) shall be submitted by the DB Entity for approval by the State and shall be implemented prior to any lane closures or outages. At no time shall the number of lanes/shoulders be reduced to less than specified in the BTC Draft TMP unless the DB Entity can provide justification (through analysis, modeling and traffic volumes) that the impacts to traffic will not be significantly worse than the traffic conditions shown in the Conceptual Sequence of Construction Phasing and Draft TMP with attachments. The DB Entity shall allow the State at least thirty (30) days for review and approval of the TMP; RIDOT requires a fourteen (14) day review period on any resubmittal. RIDOT shall be the sole entity that determines whether the proposed traffic phasing sequence constitutes a significantly worse traffic condition.

The construction/traffic sequencing and staging of the Project offers both risks and opportunities. The DB Entity shall prepare construction/traffic sequencing and staging plans that will not negatively affect the Cities of Providence and East Providence nor regional traffic patterns. Negative effects on access within the Project limits (vehicular user, pedestrians or bicyclist) shall be addressed in the Proposers response to this RFP.

1.4.5. **Hazardous Materials**

RIDOT has completed Phase I Environmental Site Assessments (ESAs) for the Gano Street and Waterfront Drive proposed construction/demolition activities. As part of the proposed work, land acquisitions will likely include an area of approximately 12,900 +/- square-feet of land at 62-78 Valley Street (Map 1, Lot 01-003) and approximately 20,740 +/- square-feet of land at 160 Valley Street (Map 105, Lot 05-008). Contaminated soils have been identified at various locations throughout the Project area. The Washington Bridge is identified as an inactive State Hazardous Waste Site (SHWS) under RIDEM Site Remediation (SR) ID# 28-1386, Route 195 DOT Contract 18 is identified as an active SHWS under SR-28-1858, RIDOT Waterfront Avenue is listed as an inactive SHWS with an AUL under SR-10-1334, and RIDOT Taunton Avenue Bridge 466 is listed as an active SHWS under SR-10-1885. A Covenant Not To Sue/Environmental Land Use Restriction (ELUR) was implemented on the parcel located at 62-78 Valley Street under RIDEM SR ID # 10-0498 in September 1999. In accordance with these documents, any excavation work shall be approved by the State and managed in accordance with the DB Entity developed site-specific Soil Management Plan (SMP), groundwater monitoring wells on this property shall not be disturbed without prior State approval and groundwater shall not be extracted and used for potable purposes. The DB Entity shall be required to comply with the RIDEM-approved Covenant Not To Sue/ELUR and SMP during construction of the Waterfront Avenue off-ramp.

For the purpose of preparing the proposal, the DB Entity is responsible for reviewing the SHWS listings associated with the Washington Bridge, RIDOT 195 Gano Contract 18, RIDOT Waterfront Avenue and RIDOT Taunton Avenue Bridge 466 sites for additional information as to the presence of contaminated soil and previously prepared remedial action workplans and/or SMPs and the Covenant Not To Sue/ELUR/SMP associated with the 62-78 Valley Street site for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project. To the extent practicable and prudent, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The DB Entity shall refer to any existing RAWPs/SMPs and the Covenant Not To Sue/ELUR/SMP when preparing a written Materials Management Plan that will guide the proper handling, reuse, recycling and/or disposal of known or suspected regulated, hazardous, or controlled materials. The Materials Management Plan will also provide adequate contingencies to address additional contaminated materials that may be encountered throughout the Project. The Materials Management Plan shall not change or remove any requirements in the RIDEM-approved SMP unless written approval of said changes and/or removals are obtained from RIDEM. The DB Entity will submit the Materials Management Plan to the State for review and approval. The DB Entity is responsible for any additional preliminary testing of soil, groundwater or construction materials needed to satisfy the requirements of its design and construction. To the extent practicable and prudent based on the results of the previous limited site investigations and any additional environmental testing deemed necessary by the DB Entity, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The

DB Entity's Materials Management Plan will clearly describe the procedures and rationale by which off-site disposal of soil will be minimized.

1.4.6.**Community Impacts**

Construction activities and traffic management will have a substantial impact on the neighboring communities, including, but not limited to, businesses along Gano Street on the west side of the project and along Taunton Ave on the east side of the project, India Point Park, the Hilton Garden Inn, as well as residential, commercial, and tourist attractions. Special attention should be given to noise and dust control in compliance with the Environmental Assessment. The DB Entity should anticipate that necessary coordination and cooperation with adjacent property owners may affect the construction schedule. Any mitigation of effects on adjacent property or its use by its owners will not be grounds for additional Contract time or compensation.

1.4.7.**Electronic Document Management**

This RFP contains a number of specifications related to electronic document management, including, but not limited to, the provisions in the text of the RFP Parts 2 and 3, Special Provision for "Progress and Payment Schedule," and the Quality Control provisions. The DB Entity is required to take into account all requirements of the RFP when developing the Electronic Document Management Methodology (EDMM) for exchanging, submitting, controlling, filing, and archiving all Project documents in the Electronic Document Management system. The Electronic Document Management system is to be developed by the DB Entity in accordance with the RFP and the Special Provisions. The DB Entity should also be aware that, as outlined in the Specifications, the DB Entity shall be responsible for hosting of the EDC software.

1.4.8.**Change Management**

The DB Entity shall develop and maintain contingency plans for potential problems that may arise during construction that will have an effect on overall Project progress. The plans shall include, but not be limited, to the following:

<u>Items that MAY be eligible for compensation (whether monetary and/or time)</u> if allowable under the terms and conditions of the contract

a. Vehicular and/or watercraft incidents
b. Emergency repairs of existing structures
c. The need for responses to natural disasters
d. Differing site conditions
e. Unmarked or incorrectly marked utilities

<u>Items that ARE NOT eligible for compensation (whether monetary and/or time)</u>

f. Inclement weather forecast that may negatively affect operations
g. Equipment breakdowns or malfunctions
h. Incidents involving delivery or removal of material
i. Temporary traffic control equipment breakdowns
j. Staff non-responsiveness
k. Necessary replacement of Key Personnel due to injury or illness
l. Environmental compliance problems

The DB Entity shall develop and maintain a Risk Register to track potential issues and discuss with the State any suggested course of action that might be taken should any of these potential issues arise, in an effort to minimize Project construction and schedule delays.

1.4.9.**Schedule Management**

The DB Entity's approach to construction of the Work shall be disclosed to the State by submission of a computerized, construction schedule satisfying the requirements of Section 7 of Part 2 of the RFP. These requirements are in addition to, and not in limitation of, requirements imposed in other Sections hereof.

1.4.10. **Project Safety**

The DB Entity shall take all reasonable precautions and be solely responsible for the safety of all its employees and Subcontractors working on the Project, and for other persons on the Site or that would reasonably be expected to be affected by the Project work; the protection of Project construction, materials and equipment shall be dealt with therein; as well as the protection of all other property on, adjacent to, or near the right-of-way that one might reasonably expect to be affected by Project work.

From the issuance by the State of a Notice to Proceed until Project Acceptance, the DB Entity shall provide adequate protection and security for the Site and shall be responsible for all damages and losses to any properties at the Site that might be caused by Project operations.

The DB Entity shall provide appropriate security for the approved staging areas and shall be responsible for damage or loss caused by the Project or the DB Entity's other actions to any property on the Site that is owned by the DB Entity, the State, or any other person.

The DB Entity shall be solely responsible for the safety and security of the work zone, including the installation and maintenance of perimeter controls such as fences and gates in areas that do not affect the traveled way or its use. The DB Entity shall investigate abutting property and shall reasonably coordinate to not interfere with access into or through private property via existing entrances and pathways, and shall maintain alternative temporary accessible pedestrian detour routes, where applicable, at all times.

1.4.11 **Archaeological Resources**

It is anticipated that completion of the Section 106 procedure with be through the execution of a project specific Programmatic Agreement in accordance with 36 CFR 800.4(b)(2) – *phased identification and evaluation.* The DB Entity shall ensure that project work complies with Section 106 of the National Historic Preservation Act (NHPA) by:

1) preparing an Archaeological Monitoring Plan for identified archaeologically sensitive areas and

2.) ensuring that a Qualified (36 CFR 61) Archaeologist is present during *all* ground-disturbing work within archaeologically sensitive areas, consistent with the approved Archaeological Monitoring Plan.

See Appendix B12 Cultural Resources for figures 1 & 2 depicting archaeologically sensitive areas to be monitored. Note that only areas labelled as "moderate' and 'high' shall be monitored (Areas W1, W5, E1, and E3 only).

An Archaeological Sensitivity Assessment has identified several areas where archaeological sites may be present. Because pre-construction archaeological survey is not feasible, RIDOT has approved a program of archaeological monitoring to occur during construction. "Ground disturbance" includes *any* permanent and temporary work/impacts to the ground surface or subsurface, including equipment storage, staging, traffic/parking (vehicle and heavy machinery), or hand/machinery excavation.

The DB Entity shall provide an Archaeological Monitoring Plan to RIDOT for review and approval, to be prepared by a Qualified Archaeologist, outlining protocols adequately addressing the following:

- On-site delineation of archaeologically sensitive areas (fencing, flagging, etc.);
- Posted on-site signage for compliance within archaeologically sensitive areas;
- Investigation and documentation of potential archaeological materials/deposits, including a plan for discard/sampling of common artifact types with low research potential;
- Communication/notification plan for discovery of potentially significant resources
- Preparation of a post-construction report with the methods, results, and recommendations resulting from archaeological monitoring

The Archaeological Monitoring Plan shall be provided to RIDOT at least 90 days prior to scheduled ground-disturbance activities to ensure adequate time for review and approval by RIDOT and RIHPHC. During monitoring, the Qualified Archaeologist shall be allowed adequate time to investigate and document suspected archaeological materials/deposits, as determined by the Qualified Archaeologist. Any ground disturbance occurring within archaeologically sensitive areas without the Qualified Archaeologist actively monitoring will be considered non-compliant.

The Department shall have the authority to inspect the worksite to ensure the Archaeological Monitoring Plan is being followed. The Department shall also have the authority to suspend Project work in the area of suspected significant archaeological materials/deposits, as identified by the Qualified Archaeologist. The DB Entity shall reschedule its work to minimize any loss of the time needed to complete the Project while the State determines the need to further evaluate, record, or salvage the archaeological materials/deposits.

Extra work ordered by the Department in connection with significant archaeological materials/deposits will be paid for in accordance with Part xx of the RFP. Delays caused by archaeological investigation beyond intermittent stoppages required by the Qualified Archaeologist, and which the DB Entity demonstrates have delayed completion of the Project, will be treated under the provisions for extension of time.

1.5. **Quality Management**

1.5.1.**General**

To ensure that goals for Project quality will be met, the State has established overall Quality Assurance (QA) requirements outlined in Part 3 of the RFP and the Mandatory Special Provisions, "Quality Management Plan and Quality Control Plans." These Provisions include comprehensive requirements for a Design QA Program to address quality in the design process and a Construction QA Program to ensure the quality of construction.

1.5.2.**Approach to Quality Matters**

The State expects that the DB Entity shall take a lead role in ensuring the quality of design and construction of the project. This lead role should be a core principle of the DB Entity's daily operations and overall approach to the Project.

1.5.3.**Quality Management**

The DB Entity shall develop, implement, and maintain a comprehensive Quality Management Plan (QMP). The QMP shall be organized following the format outlined in the Mandatory Special Provision for “Quality Management Plan” included in Appendix B.01 of Part 2 of the RFP. The QMP

shall address the information required in said Provision and any additional Quality Control requirements in this RFP or the Contract.

The State will not accept any Early-Release-for-Construction packages or Shop Drawing submittals until the QMP has been accepted by the State. The DB Entity shall not revise any portion of the accepted QMP without the prior written consent of the State thereto.

Additional requirements related to the QMP are also included in Part 3 of this RFP.

1.5.4.**Quality Control**

The DB Entity shall develop, implement and maintain Quality Control Plans (QCP) to supplement the QMP for the design and construction of the project as outlined in the Mandatory Special Provision “Quality Control Plans” included in Appendix B.01 of Part 2 of the RFP as well as in Part 3 of this RFP.

Section 2. Information Supplied to DB Entity/ Acknowledgement by the DB Entity

2.1. General

The DB Entity shall have full responsibility for completing the final design of all Project elements and acknowledges that it shall be the Engineer of Record for the final design, with the exception of the items listed in **Section 2.2**. The DB Entity acknowledges by receipt of such plans that it explicitly understands that while these plans have been advanced to a certain/preliminary level, the DB Entity shall be required to provide a final, complete Project design stamped, sealed and certified by its own Professional Engineers of Record, Licensed and Registered in the State of Rhode Island and Providence Plantations.

The preliminary plans, specifications, calculations, reports and comments provided as part of the BTC constitute that BTC and provide both the State's design baseline and minimum requirements. The DB Entity shall diligently review and verify the State-supplied Design (BTC) for errors, omissions, inconsistencies or other defects. The BTC within this RFP shall be incorporated into the final design by the DB Entity. The DB Entity shall promptly notify the State of any errors, omissions, inconsistencies, or other defects it discovers therein.

By submitting a Proposal, the DB Entity acknowledges that the State-supplied Design documentation presents a feasible concept for the Project which can and shall be used as the basis for the completion of the Project. The DB Entity also acknowledges that the Project can be completed within the schedule, timeframes and milestone durations specified elsewhere in this RFP, and agrees that it shall have no right to seek additional Contract time or compensation in relations to such matters, except as specifically permitted by negotiated Project changes.

2.2. State-Supplied Design Elements and Documentation

There are no State supplied elements that are to be considered final and not subject to revision by the DB Entity.

Section 3. Project Design and Construction

3.1. General Description and Existing Conditions

Opened in November of 1968, the Washington Bridge North No. 700 carries five lanes of Interstate I-195 westbound traffic from East Providence to Providence, Rhode Island and spans the Seekonk River and a number of local streets. The 68'-0" curb to curb dimension provides for 12'-0" travel lanes and 4'-0" shoulders with two lanes of the bridge used for traffic entering and exiting I-195 via the Rt 44/Riverside on-ramp and the Gano Street off-ramp. The remaining three lanes are used for through traffic. The main bridge consists of three different superstructure types; drop in prestressed concrete AASHTO I-beams with dapped ends supported by post tensioned concrete cantilever beams (13 spans), simple span prestressed concrete AASHTO I-beams (4 spans), and simple span plate girders (1 span). Except for the span over the navigation channel and four spans on the east end, the bridge was built with spandrel arches to match the look of the original Washington Bridge South No. 200. The bridge is supported by solid wall and multi column piers founded on a deep pile foundation system. Also included as part of this project is the Gano Street off-ramp which consists of a 3 cell non prismatic cast-in-place reinforced concrete box structure (3 spans), which is also supported on solid wall piers founded on piles. For orientation purposes the spans and piers are numbered west to east; spans 1 thru 18 and the ramp spans are designated as spans R1 thru R3.

The first significant repairs to the bridge took place in 1984 as part of RIDOT Contract 8432 and consisted of supplement support to the concrete spandrel walls. Joint rehabilitation work at pier 14 took place in 1995 as part of RIDOT Contract 9531 but the most significant repairs took place in 1998 as part of RIDOT rehabilitation Contract 9603. This rehabilitation Contract included the following repairs: partial depth deck repairs, full depth deck repairs at joints with joint replacement, casting of end diaphragms, installation of longitudinal seismic restrainers, corbel and girder repairs, spandrel wall repairs, pier repairs, modifications to bridge drainage, electrical upgrades, miscellaneous structural steel repairs, parapet modifications, installation of deck waterproofing membrane and placement of a new asphalt wearing surface. Joints on the bridge were rehabilitated in 2008 as part of Contract 2007-CH-048.

A partial rehabilitation of the Washington Bridge (Washington North Phase 1) was undertaken from 2016 thru 2019 as part of Contract 2016-CB-059. The contract documents are included in Appendix B. The DB Entity shall be made aware that these documents are being provided **for information only** and shall not be relied upon for construction but can be taken into consideration for determining the extents of required and completed work. It shall be noted that only a portion of the work depicted in the 2016 contract documents was completed during the Washington North Phase 1 project. The DB Entity shall be responsible for determining the extents of the completed work. To obtain Phase 1 construction records, requests shall be made through the State's Public Records Request process.

Section 1.1.1, Project Overview, contains a general description of the Project. For additional details on past work and current existing conditions please see Section 3.1.1 below, the appendices of this document, and the BTC plans.

3.1.1. Work Previously Performed

As mentioned above, a partial rehabilitation of the structure was performed from 2016 to 2019. The following outlines some of the work that was previously performed as well as attempts to clarify to what extent previous work was taken and what items may need to be redone and/or completed.

- Partial depth deck repairs were made over girder line 'A'. The remainder of the partial and/or full depth deck repairs were not performed.

- Partial width, full depth deck demolition was performed at link slab locations however the link slabs were not installed. At the close out of the previous project concrete was cast back into the demolished areas but link slab reinforcement was not installed. Existing concrete will need to be removed and replaced in accordance with the DB Teams accepted final design.
- Similarly, at the locations of the link slabs, the north bridge parapet was demolished and again concrete was cast back into the demolished areas at the close of the previous project, but the modifications required for the link slabs were not completed. The bridge parapet will need to be demolished again in order to properly construct the DB Teams accepted final design.
- The raised concrete gore area at the east end of the bridge was demolished but the new raised gore area was not constructed.
- Repairs to the Gano Street off-ramp box girders (interior and exterior) were completed under the last contract however additional areas of deterioration have been found. The DB Entity shall refer to the latest bridge inspection report information found in Appendix B for further details. Quantities of previously repaired areas and quantities for new areas to be repaired have been accounted for in the Only Bid Quantities in Section 3.7.3.
- Superstructure concrete repairs were performed along girder lines ‘A’ and ‘B’ however additional areas of deterioration have been found. The DB Entity shall refer to the latest bridge inspection report information found in Appendix B for further details. Quantities of previously repaired areas and quantities for new areas to be repaired have been accounted for in the Only Bid Quantities in Section 3.7.3.
- Dapped end and corbel repairs were performed along girder lines ‘A’ and ‘B’ however additional areas of deterioration have been found. The DB Entity shall refer to the latest bridge inspection report information found in Appendix B for further details. Quantities of previously repaired areas and quantities for new areas to be repaired have been accounted for in the Only Bid Quantities in Section 3.7.3.
- Most spandrel wall repairs were made however additional areas of deterioration have been found. The DB Entity shall refer to the latest bridge inspection report information found in Appendix B for further details. Quantities of previously repaired areas and quantities for new areas to be repaired have been accounted for in the Only Bid Quantities in Section 3.7.3.
- Concrete repairs were made to all piers, curtain walls, and abutments (except east abutment 2) however additional areas of deterioration have been found. The DB Entity shall refer to the latest bridge inspection report information found in Appendix B for further details. Quantities of previously repaired areas and quantities for new areas to be repaired have been accounted for in the Only Bid Quantities in Section 3.7.3.
- Electro-chloride extraction was performed on piers 14 through 17. Refer to Section 3.7.2.1 for additional information.
- The bearings and pedestals were replaced at pier 14.
- Film forming sealer and/or anti-graffiti coating was performed on some portions of the bridge however the DB Entity will be required to reapply 2 coats to all areas indicated in the BTC Plans.

3.2. **Work at Risk**

If the DB Entity decides to pursue ordering of materials before or during the review process, it will be at its own risk, and no costs will be paid for rework of items due to changes made during the review

process. No physical construction work shall commence until the State issues a Notice to Proceed" or "Release for Construction" to the DB Entity for the related work. No payment will be made for "work at risk" until approval of final design or approval of early release construction work as applicable and the work has been deemed acceptable by the State.

3.3. **Codes, Standards and Specifications**

All design and construction documents developed by the DB Entity shall be governed by requirements of the Contract and other applicable codes. (Please note: the lists included in Section [1.2] are not intended to represent a comprehensive list of all required documents; additional standards may apply). This project shall be designed in English units.

The DB Entity shall be responsible for ensuring that the final design of pedestrian facilities along the Project limits are compliant with the latest applicable standards under the Americans with Disabilities Act (ADA). This does not apply to existing facilities unaltered during construction; however, the level of non-conformity of the existing facility shall not be made worse. Any ADA-compliant provisions in the BTC shall be incorporated into the final design and construction. In addition, unless otherwise approved by the State all sidewalks shall be a minimum of four feet (4') wide not including the curb width.

The DB Entity shall perform supplemental testing, data collection, survey, borings, etc. as necessary in order to complete the design. It is the responsibility of the DB Entity to use the latest approved version of the supporting design guidance standards, regulations, etc. in doing so. Unless a specific edition or revision is indicated, reference shall imply that the latest edition or revision of the standard shall apply, including any interim revisions or updates issued prior to the award of the Contract.

For utility-related work, the DB Entity shall be responsible for obtaining and ensuring adherence of design and construction to the criteria for each utility.

Unless specified elsewhere, the construction specifications shall conform to the State standards, and with the standards, policies, and specifications identified in Sections II and III of the Rhode Island Department of Transportation Standard Specifications for Road and Bridge Design (Blue Book), and further amended by the provisions included in Appendices to Parts 2 and 3 of this RFP. Division I of the Blue Book has been replaced in its entirety for this Project by Part 3 of this RFP and by associated Special Provisions.

In general, references to the "Engineer" within Division II and III of the Standard Specifications, Blue Book, and the Special Provision or other reference documents, shall mean:

a. The "State" for matters concerning Contractual acceptance and payment.
b. The "Engineer of Record" with concurrence of the State, for matters concerning review of shop drawings, working drawings, and temporary works.
c. The "Engineer of Record" with concurrence of the State, for language such as "as directed by the Engineer."

The DB Entity shall identify and immediately bring to the attention of the State uses of the term "the Engineer" that do not clearly fall within these meanings. The State will make the final determination of the term's meaning in such instances.

3.3.1. **General Exceptions:**

Except for those items shown in the Price Proposal as separate bid items, and except for Appendix B.01 of Part 2 of the RFP, the following interpretive guidelines shall be applied by the DB Entity while bidding and developing the final Project specifications and plans:

a. Such terms as “Measurement for Payment,” “Method of Measurement,” or “Payment” shall be disregarded insofar as it is not the intent of the Design-Build Contract that the various components of the Project will be measured for payment with the exception of those items shown in Section 3.7.3.

b. Such terms as “Basis of Payment,” or “unit prices” shall be disregarded, except when unit prices are identified herein, in which case the reference shall be taken to refer either to the specific dollar amount set forth in the Standard Specifications or to a unit price proposed by the DB Entity and approved by the State.

c. Such terms as “Extra Work,” “compensation for,” “at the State’s expense,” “quantity adjustments,” “equivalent quantities,” or similar phrases shall be disregarded.

d. The term “Special Provision” shall refer to a provision of the Contract.

e. The term “incidental” or any similar term shall mean that the costs shall be included in the DB Entity’s Price Proposal.

f. The payment of the DB Lump Sum Price will be full compensation for all Project work except other items identified by the State in the bid proposal form and approved change orders.

3.3.2.**Mandatory Special Provisions:**

3.3.2.1 Design-Build Special Provisions (not to be altered)

Design-Build Special Provisions shall be used for the completion of the Project design. These mandatory Special Provisions contained in Appendix B of Part 2 of the RFP add to and amend the RFP Part 3 and the Blue Book. The DB Entity shall not change these Design-Build Special Provisions in any way unless the State determines that it is necessary to do so.

If the DB Entity believes there is a situation in which it is necessary to alter a mandatory Design-Build Special Provision or a mandatory General Special provision, it shall submit to the State in writing what it believes would be the justification for doing so.

The DB Entity shall not change the Description, Materials or Construction Methods of these Provisions, except for updating the term Engineer, consistent with the guidance herein, without the prior consent of the State to it doing so. Any related method of measurement or basis of payment will require revision as part of the final design process. The work related to these Provisions will be paid for as part of the lump sum Design-Build price.

3.3.3.**Guidance Special Provisions:**

The Guidance Special Provisions are contained in Appendix B of Part 2 of the RFP. Guidance Special Provisions are similar to Mandatory Special Provisions in that they are required to be submitted for the Project if they are applicable to work included in the final design. These specifications differ from Mandatory Special Provisions in that they may be modified by the DB Entity to meet the specific requirements of the Project. The work related to these provisions will be paid for as part of the lump sum Design-Build Price.

3.3.4.**Other Special Provisions:**

Other Special Provisions are Special Provisions not contained in Appendices B of Part 2 of the RFP that may be required to complete the design of the Project.

The DB Entity shall identify, during the preparation of its Technical Proposal, the need for any other Special Provisions for the anticipated items of work.

The DB Entity shall be responsible for seeking out from the State any Special Provisions necessary for the anticipated work, making any revisions necessary as allowed above, and submitting these to the State for review. The DB Entity shall contact the State with a list of Special Provisions necessary for the completion of the design, prior to creation of such Special Provisions, since the State may already have a specification that covers the pertinent work which may be provided by the State for implementation into the design. If the State identifies or provides a specification for the purpose, the DB Entity shall use it for the Final Design. If the State does not have a specification that covers the pertinent work, the DB Entity shall develop a specification for inclusion in the design and submit this to the State for review.

In any event, lack of familiarity by the Proposer with the States processes for specifications and Special Provisions shall not be a reason for a change order.

The work related to these provisions will be paid for as part of the lump sum Design-Build Price.

3.4. **Design Reviews and Submittals**

It is the DB Entity's responsibility to develop, internally review, and check all design submittals for quality, completeness, constructability, and compliance with the requirements of the RFP prior to their submission to the State for review and possible concurrence. Failure by the DB Entity to perform such quality checks may result in additional comments, required revisions or resubmissions, and in additional time required for their review by the State. Extended review time necessitated by incomplete or noncompliant submissions will not be a reason for a time extension. The DB Entity shall retain copies of such internal reviews and disposition of review findings for all submittals made to the State. The DB Entity shall provide copies of this evidence upon request of the State.

3.4.1. **State Reviews**

Reviews will consist of examination of formal design submittals per Section 3.4.4 to ensure that RFP, Contract requirements, Permit requirements, and design criteria are being followed, and that Quality Control activities are following the DB Entity's approved QMP. Reviews, at the State's discretion, may include, but are not limited to, review of Design Documents, electronic files, calculations, reports, specifications, geotechnical data, and other relevant design information. It is the State's intent to provide acceptance of submittals that meet all Contract and RFP requirements as confirmed by the Designer(s) of Record, Project Manager, Quality Control Manager Design, and Quality Control Manager Construction, as necessary conditions for construction to begin on any particular element.

3.4.2. **Over-the-Shoulder Reviews**

Over-the-shoulder reviews are examinations by the State (or its designated representative) of design documents during the design process. Formal assembly and submittal of drawings or other documents will not be required. Written comments will not be provided and no acceptance of any information presented at meeting will be provided. All information shall be formally submitted for review and acceptance. The State will schedule at least one over-the-shoulder review prior to the Semi-Final Design Submittal. The DB Entity shall submit all documents to be reviewed at the meeting a minimum of 48 hours in advance of the meeting.

3.4.3. **Comment Resolution Meeting**

Comment Resolution Meetings are intended to provide an opportunity for the DB Entity to ask for clarification on review comments previously provided by the State on design submittals. They also

provide an opportunity for the DB Entity to present draft resolutions to review comments for review by the State. No acceptance of any information presented by the DB Entity in the meetings will be provided by the State. The DB Entity shall schedule a Comment Resolution Meeting prior to resubmission of any submittals for which the State previously provided review comments. The DB Entity shall prepare meeting minutes for all Comment Resolution Meetings.

3.4.4.**Design Submittal Review Process**

RIDOT will be utilizing the software Bluebeam Revu Extreme® for all design submittals, utilizing RIDOT E-Plans User Guide for Electronic Plan Review, in Appendix B. The D-B Entity shall provide PDF reducing the number of hard copies required (see submittal sections below). The State will have a meeting prior to submittals outlining this E-Plan review process.

All submittals are subject to review and approval by the State. The State maintains the right to refuse and reject any submittal that does not comply with the requirements related to the preparation and submittal of Contract Documents and the satisfaction of Project requirements. If the State considers a submittal incomplete, the State may reject it due to incompleteness and the DB Entity shall be required to re-submit it with the appropriate information described below.

All design submittals shall be developed in accordance with the State's Plan Content Requirements Design Policy Memos (DPM) and shall be in English units. All submittals shall conform to the QMP submitted by the DB Entity. All submittals shall be provided in electronic format according to the current State Policies, the Document Control Methods and the Special Provisions.

In order to afford the State the ability to schedule staff to provide complete and thorough reviews of submittals, and as part of the satisfaction of the Planning and Progress Schedule requirement, the DB Entity shall develop and abide by a reasonable submittal schedule such that there are not an unreasonable number of submissions or multiple voluminous submittals within a given time period. Multiple voluminous submittals without prior notice may be cause for the State to extend the review time for a period not to exceed 30 additional days. Extension of any review time by the State will not be grounds for a request for additional time or compensation by the DB Entity.

The DB Entity shall include with all submittals a general narrative identifying which submittal(s) on the submittal schedule the submittal represents, an explanation of the contents of the submittal, any previous submittals this submittal is related to, a listing of items not included in the submittal which are to be submitted at a later date, and any other pertinent information for the reviewers benefit.

The State will review design submittals according to the following schedule:

a. Completeness Check: The State will perform a completeness check of each submission to determine if the DB Entity's submission is complete and meets the criteria for review by the State. Incomplete submission will be returned, and the review period shall not commence until a complete submission is received by the State.

b. Initial Submission: thirty (30) calendar days from receipt of a complete submission
c. Resubmittals: fourteen (14) calendar days from receipt of a complete resubmission.

The DB Entity shall:

a. Respond to comments within fourteen (14) calendar days of any State comment on the submittal.

The comments shall be addressed to the satisfaction of the State prior to the next design submission. A record of disposition of comments shall be provided at the time of resubmission

stating disposition, description of any revisions made to the submittal to incorporate disposition including location of such revisions (page number, sheet number, etc.) and evidence of review of disposition by the appropriate quality manager.

The DB Entity may request a comment resolution meeting within 7 days of receipt of State comments on a submittal to review comments for understanding. No acceptance of responses to any comments or acceptance of any changes to the design will be provided by the State at a comment resolution meeting.

The DB Entity should be aware that the review time stated above is based on an expectation that the submissions will be scheduled in a reasonable sequence coordinated according to a submission schedule.

If submittals are received after 12 p.m. (noon), the review duration will start on the next calendar day.

The DB Entity acknowledges that the State has not guaranteed any specific review period for reviews by federal, state (non-DOT) or local agencies, or utility owners. The period of each such review shall be established by the reviewing entity, at its discretion, after a plan submittal has been made to such entity. The initial, provisional assumption for the length of time for external reviews shall be sixty (60) calendar days unless specified otherwise in the RFP.

3.4.4.1. **Design Exceptions**

The Project BTC currently does not currently include any approved design exceptions for proposed roadway or bridge deficiencies. Potential design exceptions required for the Project BTC have been identified. The tables listed in Section 3.9.2 Roadway Design Criteria list the required standards, proposed values as designed, and if the proposed values require design exceptions. It will be the responsibility of the DB Entity to identify all design exceptions and obtain approval of all design exceptions. As such, the DB Entity shall limit the potential design exceptions.

Any design change that results in the need for additional design exceptions shall be clearly identified in the Proposers response and shall include a justification for the design exception.

The DB Entity shall document and submit any design exceptions as required by the State. Design exceptions shall be approved by the State prior to the Semi-Final Submittal. The DB Entity shall make every effort to improve the conditions which required the exceptions obtained. The proposed design shall not include characteristics that are worse than the design exceptions listed Section 3.9.2 Roadway Design Criteria.

3.4.4.2. **10% Design Submission**

The 10% Design Submission as outlined in the State's Plans Content Requirements DPM will not be required on this Project. The State will consider the Proposal submitted by the DB Entity to be equivalent to a 10% Design Submission. If time permits, the State may at its option provide review comments on the Proposal similar to a 10% Design Submission at the issuance of a Notice to Proceed. Should the State elect not to provide comments on the Proposal at the time a Notice to Proceed is issued, the DB Entity shall proceed directly to the 30% Design Submission stage.

3.4.4.3. **30% Design Submission**

The 30% Design Submission shall be submitted as outlined in the State's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Visual Analysis
b. Design Study Report
c. Bridge Type Study Report
d. Hydraulic Report
e. Preliminary Construction Cost Estimate

The 30% Design Submission shall also include any Early Release for Construction (ERC) packages prepared to-date that involve permanent work and shall include TMP with restriction charts for construction phases being submitted for approval. The review of the 30% design submittal will be done utilizing Bluebeam Revu®, plan copies are not anticipated for submittal.

Acceptance of the 30% Design Submission shall be obtained from the State prior to proceeding to Final Design. The DB Entity may elect to start final design activities at its own risk prior to acceptance of the semi-final design package in accordance to the terms outlined in Section 3.2.

3.4.4.4. **90% Design Submission**

The 90% Design Submission package shall be submitted as outlined in the State's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Distribution of Quantities
b. Engineer's Estimate

The 90% Design Submission shall also include any ERC packages prepared to-date that involve permanent work. The submittal of the 90% design will require one full size set of plans. All comments will be done through the Bluebeam Revu® process.

Acceptance of the 90% Design Submission package shall be obtained from the State prior to proceeding to PS & E Submission. The DB Entity may elect to start PS & E activities at its own risk prior to acceptance of the 90% Design Submission package in accordance to the terms outlined in Section 3.2.

3.4.4.5. **PS & E Submission**

The PS & E Submission shall consist of detailed, complete and checked drawings, reports and specifications necessary for construction of the complete Project. Acceptance of the PS & E Submission will be in the form of a designation of "Release for Construction."

The PS & E Submission package shall be submitted as outlined in the State's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Distribution of Quantities
b. Engineer's Estimate

The PS & E Submission shall also include any ERC packages prepared to date that involve permanent work.

Within thirty (30) days of acceptance by the State, as applicable, of the final design of all aspects of the Project, the DB Entity shall provide the Issued for Construction Documents

(plans, specifications, reports, and calculations). All plans, specifications, and reports shall be signed and sealed by the Professional Engineer(s), who shall be registered as such in the State of Rhode Island, and who shall be responsible for each portion of the Project. A written statement shall accompany the Final Design Submittal from the Design Manager indicating that the Final Design Submittal complies with all RFP and Contract requirements. Hard copies will be required for the IFC Plans, at the direction of the Project Manager and the Resident Engineer. The DB-Entity should assume that, as a minimum, two (2) full size plan sets and six (6) half-size plans will be required.

3.4.4.6. **Resubmittal Process**

Resubmittals of any Design Submittal shall be required if the State deems it necessary. Each resubmittal shall address to the State's satisfaction all comments received from a prior submittal. Each resubmittal shall be accompanied by the previous design submittal in PDF, with the response to comment in Bluebeam Revu®. The DB Entity shall not be entitled to any additional Contract time or compensation due to any resubmittal requirement by the State or any federal, state, or local agency.

The DB Entity may continue its design efforts, at its sole risk, during the design submittal or resubmittal review process. Such continuation in no way relieves the DB Entity of the responsibility to adequately address comments in the Design Documents. The DB-Entity shall provide comment responses in the PDF format using Bluebeam. The PDF with the responses shall be submitted to RIDOT for acceptance status using Bluebeam.

3.4.4.7. **Release for Construction/Concurrence/Approval/Acceptance**

The DB Entity acknowledges and agrees that the State and pertinent local agencies shall concur with the Design Documents prior to the issuance of a "Release for Construction" designation.

After Design Documents receive the State's "Release for Construction" designation, -- but after the minimum number of days specified elsewhere in this RFP before fabrication may proceed, or seven (7) calendar days prior to proceeding with such work, if not further restricted by other notice requirements – the DB Entity shall submit to the State digitally-signed documents in accordance with the State's Digital Project Development Manual.

3.4.5. **Design Documents**

The BTC plans and documents included in this RFP are as follows:

a. BTC Drawings, Dated: February 2021
b. Special Provisions

The final design documents shall be developed as required by Design Policy Memo 450.

Plan sets and sheet types for partial construction work elements, or ERC, prior to a completed final design shall be coordinated with the DB Entity's QC process and the State's oversight as per Section 3.5 of this RFP.

3.5. Early Release Construction Process

The DB Entity's schedule and work plan shall identify the items, portions, segments, or stages of work including demolition, temporary construction, temporary traffic management, rehabilitation and

substructure work that the DB Entity plans to release as ERC packages (*i.e.*, construction to start prior to completion of Final Design Documents).

The only final construction works that will be allowed for early construction (prior to the completion of the final design) are as follows:

a. Substructure repairs to piers and abutments
b. Substructure modifications
c. Bridge rehabilitation activities
d. Traffic signal hardware related to temporary signalization (if required)
e. Utility relocations
f. Temporary bridges (if required)
g. Early steel girders
h. Early bridge bearings
i. Early modular bridge joints

The DB Entity may request additional ERC items submissions prior to award of the Contract. Approval of these requests is at the discretion of the State.

Description of ERC design packages shall include a summary of all major work activities that will be included in the early-work package as well as a listing of submittals and any other documents to be provided for review.

When the DB Entity has completed the Design and other necessary preparation for an item or segment and wishes to submit that portion of the Design, the Designer(s) of Record, Project Manager, Quality Control Manager for Design, and Quality Control Manager for Construction shall determine whether or not, and, if so, certify that:

a. The Design meets all applicable requirements
b. The Design has been examined and evaluated in accordance with the DB Entity's approved Quality Management Plan
c. All required Construction QC Plans for the work item(s) have been approved
d. Said item, portion, segment, or stage is ready for construction
e. The DB Entity has obtained all required state, local, environmental, and utilities approvals and permits

The State will then conduct an oversight review of the ERC Design Submittal for said item, portion, segment or stage. Oversight reviews will consist mainly of checks to ensure that RFP, Contract requirements, permit requirements, and design criteria are being met or followed and that Quality Control activities follow the DB Entity's approved QMP and QCPs. Oversight Reviews, at the State's discretion, may include, but are not limited to, review of Design Documents, electronic files, calculations, reports, specifications, geotechnical data, and other relevant design information. The State shall be satisfied that the submittals meet all Contract and RFP requirements, and the same shall be confirmed by the DB Entity's representatives identified above, before work may begin on any particular element. If the State identifies problems with a submission, it will communicate those to the DB Entity.

After the DB Entity has satisfactorily addressed the design review comments in its Design and answered any questions to the satisfaction of the State, the DB Entity shall prepare a formal ERC Submittal including all related:

a. Design plans
b. Design calculations

c. Design reports
d. Bridge Load Rating Reports (Refer to Section 3.13.13 for applicable Bridge Load Rating Reports required)
e. Specifications (including Special Provisions)
f. Electronic files
g. Documentation that the DB Entity has obtained all required governmental approvals and utility owner approvals
h. Documentation of resolution of comments in the form of a comment resolution report.
i. Re-certifications of the revised plans, in the respects described above, from the Designer(s) of Record, Project Manager, Quality Control Manager for Design, and Quality Control Manager for Construction.
j. The Project Director's written approval of the ERC

The DB Entity shall not commence fabrication or other work until the State's design review is complete; the State provides the "Release for Construction," indicating general concurrence with the DB Entity's statement approving construction; and the DB Entity provides the plans as outlined in Section 3.4.4.5. The State's concurrence with the DB Entity's approval statement will not constitute approval or acceptance of the Design or subsequent construction, nor relieve the DB Entity of its responsibility to meet the requirements hereof. Regardless of whether or not the State provides the DB Entity with the authority to begin construction on elements of the Project prior to completion of the entire Design, the DB Entity shall bear the responsibility for ensuring that construction meets the RFP and Contract requirements. Any approved component procured under the ERC process shall have their actual dimensions and unique fabrication information incorporated into all subsequent design and construction submittals. The plans and field work shall reflect all of the information.

The State will not accept ERC submittals without an approved QMP and related QCPs.

3.6. **Construction Staging**

The construction staging shown in the BTC Conceptual Sequence of Construction Phasing Plans reflects the requirements for maintaining regional vehicular connections between Interstate I-195, Taunton Avenue, Veterans Memorial Parkway, Gano Street, associated ramps, and local roads while at the same time maintaining traffic flow through the entire Project area. The overall construction staging presented in the BTC may be revised if the Contractor demonstrates to the satisfaction of the State that it would be beneficial for advancing the Project construction, reducing the construction duration, limiting user cost delays, and limiting detrimental effects on the Cities of Providence and East Providence and regional traffic flow. The proposed construction activities are not necessarily intended to be performed sequentially. Various stages and activities may overlap to the extent that the limitations of operations and maintenance of traffic are preserved.

Detailed construction staging shall be fully designed by the DB Entity and is considered part of the Contractor's means and methods. The BTC plans and specifications indicate the general traffic management that is required for the Project. Proposers shall clearly describe their proposed construction staging in their Technical Proposals, identifying any schedule amendments or additions to the environmental approvals that may be required as a result of those proposed changes in the construction staging. All construction stages and methods shall meet the requirements of Section 3.11, Traffic Engineering, and doing so will require close coordination by the DB Entity with the State, the Cities of Providence and East Providence, and project stakeholders, and final acceptance by the State.

The DB Entity is required to include within its Proposal a complete description of its proposed construction staging, the planned duration for each construction stage including planned durations for

all ramp closures, and all anticipated negative effects that the construction staging may have on local and regional traffic (motor vehicle, bicycle, and pedestrian), and local businesses, residences and emergency services. It is required that the DB Entity present in its Proposal the logical staging of construction of the temporary construction details and final details of the roadways and bridges (*i.e.*, locations of temporary supports, construction joints, etc.), as well as anticipated negative effects on traffic flow (motor vehicle, bicycle, pedestrian) including proposed mitigation to minimize any impacts.

The DB Entity shall recognize that other construction projects may be underway or in progress within the vicinity of the Site and may have a direct impact on the execution of this Project. The DB Entity should evaluate those constructions and coordinate their activities to minimize associated conflicts and delays. The DB Entity shall coordinate with the Tolling DB Contractor for the proposed toll gantries including the location of any service connections and drilled shaft foundations to be located in the median and outside the shoulders. The tolling gantries are anticipated to be installed before the end of 2020. The DB Entity shall give the Tolling DB Contractor 30 days advance notice of any lane shifts and anticipated durations of lane shifts and shall coordinate time for Tolling DB Contractor to access the work zone to shift and test equipment.

General Approach

The BTC outlines construction stages. The list of activities provided in the BTC is intended to provide the major work to be completed during each stage but shall not be considered all inclusive. The DB Entity bears the full responsibility for identifying all required work and shall include the details of this work in the Technical Proposal. The information provided herewith shall be considered a guide.

3.7. **Bid Items**

3.7.1. **Minimum Price Items**

RIDOT has determined that there is work in the project that requires a minimum price be submitted for the minor schedule of value (m.s.v.) in the price proposal. The minimum minor schedule of value (m.s.v.) price for the following Items (as identified in Form N) shall be as shown:

Item No.	Item Description	Minimum m.s.v.
1.10.5	Training Hours (2,700)	$ 16,200

3.7.2. **Estimated Cost Items**

The State has determined that the work shown in the BTC plans for the items in the table below have quantities that cannot be estimated reasonably prior to construction.

Item No.	Item Description	Minimum m.s.v.
1.13.1	Management & Disposal of Regulated Soils	$1,000,000
1.13.2	Bridge and Road Special Maintenance FHWA Participating	$500,000
1.13.3	Bridge and Road Special Maintenance FHWA Non-Participating	$500,000
1.13.4	Towing Services	$500,000
1.13.5	Chloride Extraction *** RIDOT Item 817.9901	500,000

Work will be measured and paid for as follows:

3.7.2.1. Measurement and Payment

The sum of money identified in the Schedule of Values in Part 1 of the RFP and on the Price Proposal Form as "Estimated Cost" for each of these items of work will be considered the bid price for them, even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the Proposer. Should the Proposer alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total amount for the Contract.

The State will pay the DB Entity consistent with Section 109 in Part 3 – Terms and Conditions, of the Contract. Prices negotiated for this work shall be consistent with the applicable special provision for the unit of measure and method of measurement.

Work under these items performed without prior approval from the State will not be measured for compensation.

*** The unit cost associated with the Only Bid Quantity shall be for the actual extraction of the chlorides, if deemed necessary. The costs for retesting of piers 14 through 17, cleaning and sealing of the pier caps, and any other work necessary to provide the 25-year design life of the piers shall be included elsewhere in the DB Entities Lump Sum price proposal.

3.7.3.**Estimated Quantity Items**

The State has determined that the work shown in the BTC plans for the items in the table below have ONLY BID QUANTITIES that shall be carried by all bidders.

Item No.	Item Description	Estimated Actual Quantity	Only Bid Quantity
1.14.1	Temporary Support and Jacking – Drop In Beams (Spans 1-6 and 8-14) !!!	82 EA	120 EA
1.14.2	Temporary Jacking and Shoring of Bridge Ends Piers 14 through 17 and Abutment 2!!!	45 EA	60 EA
1.14.3	Repairs to Structural Concrete Masonry (Pneumatic Mortar); RIDOT Item 817.2100	1,050 CF	1,600 CF
1.14.4	Repairs to Structural Concrete Masonry (Patching Mortar); RIDOT Item 817.2110	1,250 CF	2,000 CF
1.14.5	Repairs to Structural Concrete Masonry (Form and Cast In Place); RIDOT Item 817.2140	1,475 CF	2,200 CF
1.14.7	Partial Depth Deck Repairs RIDOT Item 818.2020	2,100 CF	2,950 CF
1.14.8	Full Depth Deck Repairs^^^ RIDOT Item 818.2010	820 CF	1,150 CF

3.7.3.1. Measurement and Payment

The bid quantity identified in the Schedule of Values in Part 1 of the RFP and on the Price Proposal Form as "Only Bid Quantity" for each of these items of work will be considered the only acceptable bid quantity for them, even though payment will be made as described below. The bid quantity figures are not to be altered in any manner

by the Proposer. Should the Proposer alter the values shown, the altered figures will be disregarded, and the original values multiplied by the Proposers "Unit Price" will be used to determine the total amount for the Contract. All areas to be repaired or constructed shall be marked out and shall be reviewed and approved by the Engineer prior to the commencement of any work. Any work started without prior review and approval of the Engineer shall be at no additional cost to the State.

The State will pay the DB Entity consistent with Section 109 in Part 3 – Terms and Conditions, of the Contract and the following. Payment shall only be made on the quantity of actual performed work for each of the items listed in this section. Proposers shall note that the Estimated Actual Quantity is lower than the Only Bid Quantity.

^^^ Full Depth Deck Repairs excludes the deck areas associated with the link slabs.

!!! This item will be quantified and paid for per each beam end jacked.

Work under these items performed without prior approval from the State will not be measured for compensation.

3.8. **Survey**

3.8.1. **General**

As part of this project the DB Entity is required to procure survey and mapping in order to determine the horizontal and vertical location of existing features in relation to the proposed design. It will be the responsibility of the DB Entity to determine the extents of the survey they require. The State has provided the CAD files used to generate the BTC plans. The BTC plans will be made available in electronic format. All survey work shall be under the direct supervision of a Professional Land Surveyor, and the survey firm is required to hold a current Certificate of Authorization (COA) from the Rhode Island State Board of Registration.

The DB Entity is responsible for providing full topographic, planimetric, right of way, easement, utility, as-built and construction layout surveys to obtain any and all information required for use in the preparation of all design and construction documents. All survey shall comply with the State's survey and CAD requirements outlined in DPM 420.01, DPM 450.02, DPM 450.03, RIDOT TAC – 0334, CAD Standards Manual 2007, all other applicable State requirements and the additional specifications below. CAD Standards have been updated and utilize the United States National CAD Standards. Design shall be complete in AutoCAD Civil 3D 2018 or newer.

3.8.2. **Project Survey Control and Datums**

All horizontal and vertical control shall be the responsibility of the DB Entity to establish and maintain throughout design and construction. The Horizontal datum will be tied to the North American Datum of 1983 (NAD83) based on Rhode Island state plane zone 3800. The Vertical datum will be tied to the North American Vertical Datum of 1988 (NAVD 88).

Base line horizontal control and bridge control shall meet State of Rhode Island Class II accuracy standards that meets or exceeds closure of 1:50,000. Secondary control shall meet Class I accuracy standards of 1:10,000. Vertical control shall meet Class V-2 accuracy standards for the main level loop and bridges. Secondary level loops that do not involve bridges

can meet Class V-1 accuracy standards. Temporary benchmarks shall be established every 500 feet.

Survey Data, from preliminary design through the as-built after construction, shall be on the datum used in the digital files established by the DB Entity. Care should be used with electronic CAD data during the entire Project so that no translation or rotation of data occurs.

3.8.3. **Photogrammetric Mapping and LiDAR**

Due to the size of the project the DB Entity may utilize Photogrammetric mapping in conjunction with LiDAR data if required in order to capture the necessary topographic and planimetric data for design. Should the DB Entity employ the use of Photogrammetric mapping and LiDAR data the mapping at a minimum should meet or exceed accuracy standards for 1”=20’ mapping scale with 1-foot contours.

Upon delivery of the Photogrammetric mapping it will be the responsibility of the DB Entity to verify the Horizontal and Vertical accuracy of the mapping to ensure it meets the accuracy standards required for the project. In addition, it will be the responsibility of the DB Entity to survey any necessary obscured areas in the mapping such as under bridge structures, wooded areas or shadow areas that are necessary for the design. Obscured areas not necessary for the design or that do not require the accuracy level needed for design do not need to be surveyed.

All Mapping will meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) Class I accuracy standards, as well as National Map Accuracy Standards.

3.8.4. **Bridge Surveys**

The DB Entity will be responsible for identifying the structures that need to be surveyed and the extent of the horizontal and vertical survey required. All surveyed areas will have horizontal and vertical information based on the datum of the project.

At a minimum, the bridge survey shall include verifying the gutter lines on the bridge deck, bridge approach, and parapet walls every 50 feet. Sections should be taken perpendicular to the bridge baseline every 100 feet to verify the topography. Depending on the work to be undertaken at a particular bridge the below the bridge surveys may include locating the abutments, top and bottom of batters, bridge seats and backwalls, angles of wingwalls, piers, bearing plates, utilities, centerline of bottom beam at the abutment or pier and midpoint, girder lines and any other information required for design of that particular bridge. It will be the responsibility of the DB Entity to identify what is required for each bridge.

3.8.5. **Utilities**

It’s noted that numerous utilities exist within the project area and will need to be identified and shown on the mapping. The DB Entity shall be required to identify the limits of utility work and to contact each utility to obtain any available information they have as well as contacting Dig Safe to have the utilities marked out. Marked out utilities shall be surveyed and included in the mapping along with any researched utilities.

3.8.6. **Drainage and Sewers**

Catch basins, manholes and any other storm drainage structure will need to have invert elevations taken on all structures and outfalls. The DB Entity will identify the work areas and drainage systems needed to include elevation data and incorporate that data into the mapping.

Elevations will include pipe inverts, sump bottom, pipe sizes and material and any additional information found during the course of field work.

For sanitary sewer systems it will be the responsibility of the DB Entity to identify critical structures or systems that will be affected by the design and require invert elevations, pipe sizes and materials.

All invert elevations obtained on drainage and sewer structures shall be incorporated in the mapping.

3.8.7. **Test holes and Soil Borings**

Test holes and soil borings will be necessary to determine the geophysical character of soils and the location of certain items below ground within the project area. The DB Entity will be responsible for providing survey to mark out the locations as necessary of the soil borings and test holes, survey the actual locations should they deviate from the marked-out ones and survey excavated underground information as necessary.

3.8.8. **Right of Way and Easement**

The DB Entity's Designer is required to provide right of way and easement mapping, legal descriptions and filing Mylar's for any impacts that will occur outside the State's right of way. All mapping will be to the State's standards and follow the most recent guidelines for CAD standards.

3.8.9. **Construction Layout**

During the construction phase of the project the DB Entity is required to provide all necessary construction layout and mapping surveying services necessary for the successful completion of the project.

3.8.10. **As-built**

During construction and after construction, as-built surveys shall be required to ensure compliance with the design. The DB Entity will be responsible for providing surveying and mapping services to locate the improvements.

3.8.11. **Deliverables**

At the end of each phase of project, the DB Entity is required to provide the State with all necessary materials and information, including as-built plans and other items as outlined in DPM 420.01, DPM 450.02 and DPM 450.3 in adherence with TAC 0159. Anticipated phases would be completion of base mapping, substantial completion and project close-out. Survey field books (hard bound or electronic) shall be returned to RIDOT Survey at the completion of the project. The State reserves the right to request such information during the project phases to ensure compliance with the State's policies.

3.9. **Highway Design**

3.9.1. **General**

In the BTC Plans, the layout of the proposed Gano Street On-Ramp and Waterfront Drive Off-Ramp remain mostly within the existing highway right-of-way. However, the Waterfront Drive Off-Ramp will require the partial acquisition of some property in the area of 62-78 Valley Street. Both ramps will be constructed along the proposed alignments shown in the BTC plans and will transition into and out of the existing I-195 westbound alignment. Additionally, the construction of the proposed connector road between Valley Street and Waterfront Drive in

East Providence will require the acquisition of property in the area of 160 Valley Street. The State will acquire right-of-way at the two (2) aforementioned locations promptly upon receiving the required documents from DB's Designer. The typical time frame to complete the acquisitions is generally 4-6 months. The DB Entity shall provide a duration of 6 months, from submission of acceptable right-of-way documents to final certification, within the required Baseline Schedule submission. No work on privately owned properties shall commence until a Right-of-Way Certification has been issued by the State.

In addition to its meeting all other requirements applicable to the Design hereunder, the DB Entity shall prepare the final horizontal and vertical design of the roadway elements of the Project in accordance with the standards referenced herein. The roadway design shall be consistent with the improvements presented in the Project Plans.

The Design shall meet the requirements of the referenced design standards. Any changes to the BTC highway design may require amendment to the environmental.

At the conclusion of the project, the final paving limits shall include mill and overlay of full extents of any temporary traffic control phasing employed by the DB Entity on I-195, Gano Street Off-Ramp, and local roads. At a minimum, these limits shall extend as follows:

a. I-195 Eastbound: Limits shall be as shown in BTC plans and to the limits of temporary traffic phasing.
b. I-195 Westbound: Limits shall be as shown in BTC plans and to the limits of temporary traffic phasing.

3.9.2. **Roadway Design Criteria**

Appendix B contains design criteria tables for the various roadways in the Project. The tables also include anticipated Design Exceptions. The DB Entity shall minimize Design Exceptions through the Proposal process. If additional design exceptions result from the Proposal process it will be the responsibility of the DB Entity to obtain approvals.

State acceptance will be required if a proposer seeks to change a proposed design criterion from the values shown in the following tables for the BTC that results in a new Design Exception being required.

3.9.3. **Pavement Design**

The proposed pavement structure is shown in the BTC plans. No changes to the pavement structure are allowed unless approved by RIDOT.

3.10. Streetscape

3.10.1. General

No streetscape features are anticipated for this Project.

3.11. Traffic Engineering

3.11.1. General

The Contractor is responsible for the final design of all traffic engineering aspects of the project. The Contractor shall comply with requirements outlined in RIDOT's BUILD Grant Application including but not limited to, mitigation of the traffic congestion in the study area as outlined in Section I. The BUILD Grant Application is included in Appendix B. Per direction from the State

and subsequent to the BUILD Grant Application approval, the I-195 WB to Gano Street off-ramp movement will be included in the proposed project improvements.

3.11.2. Maintenance and Protection of Traffic Plan

The various lane configurations and roadway closures, detours and temporary access roads shown in the construction staging plans presented in the BTC shall be followed unless alternatives are accepted by the State through the Proposal process. Any modification that varies from the BTC construction staging plans shall be accompanied by a traffic analysis model (VISSIM for freeways/interstates/ramps, SYNCHRO or VISSIM for all other roadways) in order to demonstrate that the proposed changes will result in acceptable traffic operations. RIDOT shall be the sole entity that determines whether the proposal constitutes acceptable traffic conditions.

a. Reduction to the number of traffic lanes along I-195 and all off-and on-ramps shown in the staging plans **will not be allowed**.

b. Reduction in the number of lanes on all other roadways will not be allowed without an approved modification and accompanied VISSIM or SYNCHRO traffic analysis.

c. Reduction of freeway weaving, tapering and merging distances will not be allowed without a prior approved modification and accompanied VISSIM traffic analysis.

d. If a Proposal changes these BTC Conceptual Sequence of Construction Phasing plans and Stages, the Contractor will be responsible for obtaining required approvals from RIDOT and any third parties as directed by RIDOT.

Pedestrian facilities including ADA compliance shall be maintained on all open roads wherever pedestrian travel is currently permitted. The DB Entity is not responsible for maintaining access to pedestrian travel on closed roadways with the exception that pedestrian access shall be maintained to businesses and residences at all times as outlined in Section 3.11.2.2 below. The DB Entity shall maintain access to the Blackstone River Bikeway and the East Bay Bike Path. The DB Entity will be responsible for maintenance and providing an acceptable operating condition of the travel lanes within the limits of the project area.

Current traffic movements through intersections in the surrounding project area shall be modified to accommodate traffic detours during construction. The DB Entity shall facilitate the detours and maintenance of intersections, including early notifications to the stakeholders of upcoming road closures and detours. Conceptual Detour Plans are included in the Appendix B for use by the DB Entity in developing their plans. The DB Entity shall be responsible for developing the final detour plans in accordance with RIDOT and MUTCD standards.

A detailed MPT Plan for all major construction elements is required. Plans shall be drawn to scale and include all proposed traffic control devices, signing and pavement markings. Traffic management of all bicycle, pedestrian, and vehicular traffic shall be maintained within the limits of work throughout construction except as shown in the Conceptual Sequence of Construction Phasing Plans and BTC Draft TMP. The DB Entity shall provide traffic mitigation plans as needed for the intersections within the proposed detour routes. The proposed detour routes are shown in the BTC Conceptual Detour Plans. These plans shall consist at a minimum of a traffic monitoring program and a schedule for improved traffic signal timings.

The BTC Conceptual Sequence of Construction Phasing Plans and BTC Draft TMP depicts the intended staging and lane requirements during construction and any variations to the Traffic

Management or construction Staging will require prior authorization and approval by RIDOT. The requirements of the MPT plan include:

a. Vehicular, bicycle and pedestrian access to local businesses is required at all times during construction.

b. A minimum of 11-foot wide vehicle travel lanes on Interstate I-195, including ramps, during construction.

c. Temporary ground-mounted and overhead signing that meets State and MUTCD work zone standards and specifications.

d. All roadways and ramps shall remain open to traffic unless otherwise shown on the Conceptual Sequence of Construction Staging plans and shall provide adequate width to allow vehicles to travel around a disabled vehicle with the exception of the temporary contraflow lane on I-195. Any closures in addition to those shown on the plans shall be approved by RIDOT.

e. Temporary ramps (if utilized) shall contain adequate acceleration and deceleration lanes and be designed to a 25 MPH Design speed minimum unless otherwise noted.

f. Traffic signal monitoring shall be provided, with the potential for traffic signal timing changes as applicable. Monitoring of signal timings, suggested changes, and implementation shall be coordinated and implemented by the Contractor. The Contractor shall coordinate all work with the State and the Cities of Providence and East Providence and obtain approval from the State and the Cities of Providence and East Providence prior to implementation.

g. Detours specified in the BTC shall be implemented as necessary, in such a manner that ensures the least possible disruption to traffic. If an alternate route is considered, a plan shall be prepared by the DB Entity and approved by the State and the Cities of Providence and East Providence prior to implementation.

    - Note that the Taunton Avenue on-ramp closure can not take place until the proposed connector road between Valley Street and Waterfront Drive is operational.

h. Police detail or officers shall be used as required. Certified flaggers may also be used if the traffic volume and conditions meet the State and the Cities of Providence and East Providence criteria for flaggers. The DB Entity shall coordinate this effort with the State.

i. The DB Entity shall perform a review of all traffic signals impacted by the project and along the proposed detour routes and identify operational and equipment issues (included but not limited to signal controller, vehicle detection, pedestrian pushbuttons). The DB Entity shall inform RIDOT and the Cities of Providence and East Providence on all identified issues one month prior to any proposed detours to allow RIDOT and/or the Cities of Providence and East Providence to rectify any issues.

3.11.2.1. **Off-peak Hour Lane Closures**

The allowable times when lanes and shoulders can be closed are shown in the BTC DRAFT TMP included in Appendix B. The DB Entity shall determine the allowable times when lanes can be closed on any roadway during off-peak hours. This shall be based on actual traffic counts in the affected areas. In general, lanes may be closed when the traffic

volume per lane is less than 1600 vehicles per hour per lane; however, additional analysis or modeling may be required by RIDOT in order to account for weaving traffic and other disruptions to free-flowing traffic. The DB Entity shall submit the proposed lane closure specifications to the State for approval.

The DB Entity shall develop lane closure plans depicting temporary traffic management features. These plans shall be in accordance with the Manual on Uniform Traffic Control Devices. The Conceptual Detour Plans included in the BTC shall not be construed as an approved traffic control plan.

3.11.2.1A **Special Requirements for Traffic Protection**

In accordance with RIDOT TAC – 0350; Lane Closure/Lane Split Coordination Policy, the DB Entity shall notify the Department three (3) weeks in advance of a bridge or roadway closure/split/travel lane reduction. The Policy states that "All full closures, splits, or shifts shall be scheduled to begin on ***Friday or Saturday night***, as determined by the TMP, to allow motoring public time to adjust to new travel patterns while allowing RIDOT the opportunity to evaluate its success. Construction work can commence on the Monday following the evaluation period."

Any exceptions to this Lane Closure/Lane Split Coordination Policy shall be approved by the Senior Management of Department.

3.11.2.2. **Access during Construction**

Access to local businesses and residences in the project area shall be maintained during construction. Temporary ramp closures and detailed construction sequencing will allow traffic to be maintained during the construction of the project. The DB Entity will be responsible for maintenance of traffic and providing an acceptable operating condition of the travel lanes within limits of the project area. The DB Entity shall facilitate the detours and maintenance of intersection operations.

The DB Entity shall maintain access (vehicles, bicycles, and pedestrians) to adjacent businesses and recreational facilities at all times during construction.

Access to all work zones shall be detailed in the Maintenance and Protection of Traffic Plans.

3.11.2.3. **Temporary Ramps, Bridges and Structures**

The Conceptual Sequence of Construction Staging plans show temporary ramps and/or temporarily relocated ramps in order to allow rehabilitation of the bridge and construction of the proposed ramps while maintaining the required number of traffic lanes. The BTC plans do not depict temporary structures for signs. The DB Entity shall determine if temporary sign structures will also be required and include these in their design.

All temporary ramps shall be designed by the DB Entity according to the applicable specifications.

The DB Entity may alter or eliminate any of the temporary structures, provided that the required number of traffic lanes and sidewalks are maintained. All alterations and/or eliminations require the approval of RIDOT before implementation.

3.11.2.4. **Temporary Roadside Elements**

All temporary roadside design elements including but not limited to highway guardrails and construction barriers shall be designed in accordance with the most current AASHTO Roadside Design Guide and the AASHTO Manual for Assessing Safety Hardware 2016 (MASH). MASH TL-4 barriers shall be used on I-195 and on all ramps leading to and from I-195. All other temporary barriers shall be in accordance with RIDOT TAC 0349.

The structural design of all temporary roadside elements including all components, support poles, appurtenances, and anchorages shall be designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. The sign supports shall be designed without the assistance of any guying wires or external supports.

Proposed signing plans shall include the layouts showing locations of existing and proposed ground mounted and overhead signs, special sign details, legend, sign lighting and structural and foundation requirements. Any requirements for electric service shall be coordinated with the local electric utility and provided by the DB Entity.

The DB Entity shall be responsible for the maintenance of all temporary roadside elements and the resolution of any found to be impeding safe operation of traffic at the discretion of the State.

3.11.2.5. **Temporary Pavement Markings**

The Contractor will provide temporary pavement markings as required within the Project limits to provide a complete traffic pattern at all times during the Project. The DB Entity shall be required to design and install pavement markings in accordance with State and MUTCD work zone standards and specifications. Use of Temporary Plastic Pavement Marking Tape is prohibited. Temporary lane configurations on other roadways that will remain in place for more than thirty-six (36) hours shall be delineated with temporary pavement markings.

Temporary pavement markings shall be “Epoxy Resin Pavement Markings.” The contractor shall grind off all temporary and existing conflicting pavement markings during all stages of construction in a way that only one set of pavement markings are visible. At the completion of staged construction, all pavement areas that were affected by grinding of markings shall be milled to a minimum depth of 2” and replaced with new pavement that matches the specified pavement. Upon completion of this work, all previous markings shall be reestablished with permanent pavement markings according to the project specifications.

The DB Entity shall promptly respond to all requests by the State to refresh or remove markings within the Project limits during the construction period.

3.11.2.6. **Temporary Barrier**

The DB Entity shall provide all Temporary Barrier required for the Project. All barrier shall be placed such that no blunt ends are exposed to traffic. If blunt ends are required, approved impact attenuation devices shall be installed and maintained at all times. Barrier installed on bridges with a drop off shall be anchored as approved by the Engineer. Temporary Barrier shall meet the requirements of RIDOT’s Standard Specifications for Road and Bridge Construction, RIDOT Standard Details and AASHTO’s Roadside Design

Guide and shall be MASH compliant. Additionally, any temporary barrier anchored into to new structures should be placed with cast in place inserts. No drilling into new decks will be allowed to anchor temporary barrier. Temporary barrier for traffic control shall conform to the requirements of RIDOT TAC – 0349.

3.11.2.7. **Off-Site Traffic Signals**

The DB Entity shall be responsible to alleviate increased delays and queues that may occur at intersections external to the immediate project area at no additional cost to the State. It is anticipated that this work will predominantly consist of traffic signal timing modifications at existing signal locations. The DB Entity shall coordinate any potential adjustments with RIDOT and the City of Providence and/or East Providence. The signals shall be returned to the pre-construction configuration upon completion of the temporary works or as directed by the City of Providence or East Providence. The DB Entity shall perform a review of all traffic signals impacted by the project and along the proposed detour routes and identify operational and equipment issues (included but not limited to signal controller, vehicle detection, pedestrian pushbuttons). The DB Entity shall inform RIDOT and the City of Providence or East Providence on all identified issues one month prior to any proposed detours to allow RIDOT and/or the City of Providence or East Providence to rectify any issues.

Temporary traffic signals and/or signal modifications are to be considered at the secondary road intersections that are affected by the project and the project detours, including but not limited to the following roadway corridors and intersections.

Corridors:

- South Main Street/South Water Street, Providence
- Wickenden Street, Providence
- Gano Street, Providence
- South Angell Street/Angell Street, Providence
- Warren Avenue, East Providence
- Taunton Avenue, East Providence
- Broadway, East Providence
- Pawtucket Avenue, East Providence

Key intersections:

- South Water Street at Wickenden Street, Providence
- South Main Street at Wickenden Street, Providence
- Benefit Street at Wickenden Street, Providence
- Gano Street at Trenton Street/I-195 Westbound ramp, Providence
- South Angell Street at Butler Avenue, Providence
- Waterman Street at Butler Avenue, Providence
- Gano Street at Pitman Street
- Warren Avenue at Broadway, East Providence
- Broadway at Freeborn Avenue/I-195 Westbound ramps, East Providence
- Pawtucket Avenue at I-195 Westbound on-ramp, East Providence
- Pawtucket Avenue at Taunton Avenue, East Providence

Traffic volumes will be provided as part of the BTC Plan. If additional traffic counts are required for the final design due to change of the BTC, proposed by the DB Entity, the DB Entity shall obtain them at no cost to the State. Prior to detouring traffic, the DB Entity shall submit to the State for approval, temporary signalization plans with revised timings based on capacity analysis.

The DB Entity shall provide a traffic analysis memorandum that includes traffic operations analysis (using VISSIM and/or SYCNHRO) along all impacted intersections (including detour routes). Any revised timings listed on the temporary signalization plans shall be based on the traffic analysis.

The DB Entity is required to have a Monitoring Plan in place and make controlling signal timing changes to accommodate the revisions in the traffic patterns. The Monitoring Plan shall be prepared by the DB Entity and submitted for approval to the State and the City of Providence and East Providence before the commencement of construction activities that will have the possibility to impact AM or PM peak period traffic. The Monitoring Plan shall include proposed staffing by the DB Entity for all identified intersections during each peak traffic period. The Plan shall define the methodology to be used to react to issues identified during the monitoring. All signal timing changes are to be approved by the State and implemented by the DB Entity.

3.11.2.8. **Transportation Management Plan (TMP)**

The need for a Transportation Management Plan (TMP) has been evaluated by the State and it has been determined that the development of a Level 1 TMP is required for this project. The DB Entity is required to submit a TMP to the State in accordance with the FHWA guidance document titled “Developing and Implementing Transportation Management Plans for Work Zones.” This document can be found at the FHWA website listed below.

(http://www.ops.fhwa.dot.gov/wz/resources/publications/trans_mgmt_plans/index.htm).

The TMP shall clearly state the closure duration(s) for each of the four (4) existing on/off-ramps within the project limits; existing Gano Street on-ramp, Gano Street off-ramp, Taunton Ave on-ramp, and Vets Memorial Parkway on-ramp. The DB Entity will be held to the durations provided in the TMP and actual closure durations which exceed those accepted in the TMP will invoke Section 937.1000 of the Mandatory Specifications.

A BTC Draft TMP is included in Appendix B including attachments that specify the minimum number of lanes and shoulders to remain open to traffic at all times. At no time shall the number of lanes/shoulders be reduced to less than what is specified in the BTC Draft TMP unless the DB Entity can provide justification (through analysis, modeling and traffic volumes) that the impacts to traffic will not be significantly worse than the traffic conditions during the construction of the BTC. RIDOT shall be the sole entity that determines whether the proposal constitutes a significantly worse traffic condition.

Documentation of the TMP pertinent to the project design shall be included in the Design Report which is required with the standard milestone submissions.

Elements of the TMP shall be presented in the contract’s plans (such as the Temporary Traffic Control Plan(s)) and specifications.

3.11.2.9. **Temporary Changeable Message Signs**

The DB Entity shall provide temporary changeable message signs outside of the immediate construction area to provide advance warning for motorists. These temporary devices will supplement the State's existing changeable message signs.

The DB Entity shall coordinate with the State to finalize the changeable message sign locations and text. Signs shall not be placed on private property or on sidewalks.

The DB Entity will be responsible for supplying and maintaining the temporary changeable message signs. The DB Entity will promptly respond to all State requests to relocate and/or update text on the changeable message signs during the Project.

3.11.2.10. **Real Time Work Zone Traffic Information System (RTWS)**

It is anticipated that traffic conditions will deteriorate due to queuing caused by high traffic volumes, work zone vehicle interference, weather, grade changes, etc. This project will require the DB Entity to supply the necessary equipment to monitor traffic due to these conditions. The DB Entity shall furnish, install, relocate, maintain, and operate a Real Time Work Zone Traffic Information System (RTWS) throughout the duration of the project. The RTWS shall detect traffic conditions in advance of, and/or through, the work zone and provide real time traffic information to motorists.

The RTWS shall include, at a minimum, vehicle detection; portable changeable message signs (PCMS), portable cameras, and a website for monitoring traffic remotely, associated communications and software as defined herein. The system shall be capable of transferring real time data in a file format compatible for the State, as well as to an external website. The project website shall provide current operational status (i.e. current traffic data and messages, communication system signs, and sensors) via the internet to any web-browser equipped remote computer.

To support incident management, the RTWS shall be programmed to authorized State project personnel and the TMC Control Room staff to manually override motorist information messages for a user-specified duration after which automatic operation will resume with display of messages appropriate to the prevailing traffic conditions. The DB Entity shall supply training and documentation to enable the State system operators to add additional signs or traffic sensors to the system.

The DB Entity shall:

- Ensure that the RTWS is furnished, installed, and maintained by personnel who are experienced in this type of work.

- Ensure that an "on site" specialist, who is skilled in the operation of all the RTWS equipment and software is locally available 24 hours per day, 7 days per week, to maintain the system components, move portable device as necessary and to respond to emergency situations within 24 hours, and ensure that this specialist is equipped with sufficient resources to respond to needed corrections of deficiencies.

- Ensure that the Engineer and his/her designee are trained to operate the system.

- The RTWS is required on I-195, Taunton Avenue, and Veterans Memorial Parkway. Additionally, DB Teams shall investigate the feasibility of RTWS on local roadways to reduce the impacts of the construction phasing to roadway users.

3.11.3. Permanent Roadside Elements

All permanent roadside design elements including but not limited to highway guiderail, vehicle barriers, sign supports, drainage outlets, railings, curbs, light poles, gates, and fences shall be designed in accordance with the most current AASHTO Roadside Design Guide and the AASHTO Manual for Assessing Safety Hardware 2016 (MASH). MASH TL-5 barriers shall be used on I-195 and all ramps leading to and from I-195. All other barriers shall be MASH TL-4. All W-Beam guardrail shall meet MASH TL-3. All transitions from W-Beam to concrete barrier shall include a thrie-beam connection at the barrier. All end terminals and/or crash cushions shall meet MASH TL-3.

New signage shall be provided as required for the proposed design in accordance with State and MUTCD standards and specifications. Signage shall include, but not be limited to, wayfinding signage to direct motorists from the Waterfront Drive off-ramp to the I-195 westbound on-ramp at Warren Ave / Veterans Memorial Parkway and the eastbound on-ramp at Warren Ave / S. County Street, in addition to any other wayfinding signage needed throughout the project limits.

A protective sealer is required on the exposed surfaces of all permanent median barriers in accordance with the Specification for Section 820 – Concrete Surface Treatment – Protective Sealer. The final topcoat color shall be gray.

The DB Entity shall include, with the approval of RIDOT, mitigation/countermeasures in the design to reduce the potential for wrong way vehicular entry at interchange ramps. Potential elements could include signage, striping, lighting, delineation, ITS, bi-directional arrows, and/or Wrong Way sign activation via radar.

3.11.4. Permanent Pavement Markings

The DB Entity shall provide permanent pavement markings as required within the Project limits to complete the Project. The DB Entity is required to design and install pavement markings in accordance with State and MUTCD standards and specifications. At the conclusion of the project, the final paving limits shall include mill and overlay of full extents of any temporary traffic control phasing employed by the DB Entity on I-195 and all new and impacted on/off ramps and local roads. New permanent pavement markings shall be installed in all these areas.

Pedestrian crosswalk layout and details shall be constructed in accordance with the BTC Plans, Special Provisions and according to the State standards and City of Providence or East Providence Standards.

3.11.5. Permanent Traffic Signals

The Traffic Signal equipment at the intersection of Gano Street at Trenton Street/I-195 WB Off-Ramp will be replaced with new equipment. The DB Entity is responsible for improving the safety of the intersection as it pertains to pedestrians and bicycle traffic thru the use of pedestrian signals, bike signals and associated traffic safety signing (i.e. ‘no turn on red’, etc) at the intersection. The design of this intersection requires coordination with the City of Providence, area stakeholders (including but not limited to City of Providence Bicycle and Pedestrian Advisory Commission, City of Providence Planning and Development Department,

City of Providence Public Works Department, Fox Point Neighborhood Association) and a Public Outreach effort. The DB Team shall anticipate multiple iterations with respect to this coordination effort.

Traffic signal poles and light poles shall meet current RIDOT, City of Providence or City of East Providence standards depending on the appropriate jurisdiction. The DB Entity is responsible for the installation of the signals including ancillary equipment. Modifications to the Broadway at Warren Avenue, and Broadway at I-195 westbound ramps intersections are also required.

The newly constructed intersection at Waterfront Drive and the new I-195 WB Off-Ramp shall be signalized. The signal system shall include queue detection on the off-ramp to prevent queues onto I-195 WB and shall be designed to allow for the future installation of pedestrian accommodations, including APS.

The Signals will use metered service from National Grid to power all signal equipment. RIDOT will be responsible for paying energy costs for the following signals upon final completion of the Project:

- Gano Street at Trenton Street/I-195 WB Off-Ramp
- Waterfront Drive at I-195 WB Off-Ramp

All other signals are expected to remain under the current agency jurisdiction.

Prior to the start of construction and procurement of any traffic signal equipment, the final locations of all underground and overhead utilities in the vicinity of the traffic signals should be verified and adjusted by the DB Entity in order to avoid conflicts with the completed traffic signal design. A field utility walkthrough shall be done to locate any utility that may come in conflict with the Traffic Signal.

3.11.5.1. **Methods and Materials**

All material and construction methods shall conform to Rhode Island DOT's standard specifications and details which are available on the State's website. Additionally, provisions shall be made by the DB Entity to meet or exceed R.I. structural design requirements of the proposed traffic signal pole attachment falling within the limits of the proposed and existing bridge structures and/or retaining walls.

3.11.6. **Wrong Way Driving Mitigation**

The DB Entity shall be responsible for the design, construction, and implementation of wrong-way driving detection and mitigation systems at the following two locations within the project limits:

- Gano Street at Trenton Street/I-195 WB Off-Ramp, and
- Waterfront Drive at I-195 WB Off-Ramp.

The DB Entity shall coordinate the design of the wrong way driving systems with the Traffic Management Center (TMC). Approval of the final design will be made by the TMC.

Specifications for wrong way driving equipment and systems can be found in Appendix B.

The DB Entity shall account for additional locations where wrong way driving equipment and systems may be added within the project area as part of the approval process of the Interchange Justification Report under review by FHWA.

3.11.7. Potential Alternatives

Alternatives may be considered and are encouraged for the design. Acceptance of these alternatives is not guaranteed. They would need to be vetted by the Proposer and submitted as part of the Proposers final proposal.

3.11.8. Disallowed BTC Modifications

BTC modifications that include any of the following will not be accepted by the State.

a. Changes that will not adhere to the approved environmental documents.
b. Changes that require additional Rights of Way, unless the DB Entity procures said rights of way.
c. Elimination of any ramp movements, roadways, or intersections.
d. Changes that will result in vehicle queues and travel times that exceed the vehicle queues and times listed in the RIDOT BUILD Grant Application (included in Appendix B).
e. Changes that have not or cannot be approved by all parties involved, including but not limited to, RIDOT, FHWA, The City of Providence, The City of East Providence and regulatory agencies.

3.12. Geotechnical

3.12.1. General

The DB Entity shall conduct all work necessary to complete the geotechnical investigation and design for the project. Elements of the work include, but are not limited to, the following:

a. The DB Entity shall review the existing geotechnical information that includes the Geotechnical Data Reports (GDR, Appendix B).

b. Additional geotechnical information in the form of historic as-built drawings and soil boring logs are included in Appendix B for reference purposes.

c. The DB Entity shall evaluate the requirements of the work and perform geotechnical explorations, geotechnical analyses and laboratory testing to supplement the existing data that, at a minimum, shall meet the requirements for final design in the Rhode Island LRFD Bridge Design Manual and other mandatory standards. The DB Entity shall provide geotechnical designs and construction support in accordance with this section.

The DB Entity shall prepare and submit a final GDR and GIR for their final design. The purpose of the GDR and GIR are as follows;

a. Geotechnical Data Report (GDR) – The GDR contains all the factual geotechnical data gathered for the project. The GDR and geotechnical data generated by the DB

Entity are to be used as the basis for final design.

b. Geotechnical Interpretive Report (GIR) – The GIR is an interpretive geotechnical document used to establish a common understanding and interpretation as understood by and used by the DB Entity (designer & builder) of the subsurface conditions and their potential impact and effect of risk on the design and construction of the project design concept. The GIR is considered to be the primary contractual interpretation of the project geotechnical subsurface conditions and their potential effect on design and construction of the project design concept as portrayed in the RFP.

The BTC is based on the assumption that foundations supporting new bridge structures and the widening of Bridge No. 700 will consist of deep foundations consisting of driven piles, drilled micropiles, or drilled shaft foundations. Retaining walls intended for highway grade separation may be supported on either spread footings or deep foundations. The BTC also assumes that new embankments and retaining walls that are located in areas underlain by compressible organic soils and liquefaction susceptible soils will be adequately designed to address settlement and global stability issues. The DB Entity will be responsible for all supplemental geotechnical explorations, testing, research and other measures as necessary to support any proposed modifications to the BTC foundation assumptions.

As part of the final design, the DB Entity is required to completely analyze the new structures, including the widening of Bridge No. 700, for all proposed conditions and take full design responsibility for all aspects of the foundations.

All geotechnical construction shall be conducted in accordance with the geotechnical reports prepared as part of the Final Design. Any additional subsurface explorations required to complete the geotechnical report shall be the responsibility of the DB Entity.

3.12.2. Personnel Requirements

The DB Entity shall provide a Geotechnical Engineering Manager with a minimum of 10 years of supervisory experience in geotechnical design and construction support of roadways, bridges, retaining walls and other highway-related elements. The Geotechnical Engineering Manager shall have experience working on RIDOT projects and shall be familiar with the AASHTO LRFD Bridge Design Specifications, the AASHTO Guide Specifications for LRFD Seismic Bridge Design, and the AASHTO Manual on Subsurface Investigations. The Geotechnical Engineering Manager shall be a Professional Engineer, licensed in the State of Rhode Island, and shall be responsible for the geotechnical design elements of the project.

3.12.3. Existing Geotechnical Information

Subsurface geotechnical investigations have been performed for the development of the BTC to supplement the original boring information and other historical information. This information is included in Appendix B.

3.12.4. Geotechnical Study by the DB Entity

As indicated above, geotechnical study and analysis by the DB Entity will be necessary for completion of the final design. This work shall be included in the proposal price. Additional geotechnical explorations and analyses, as required, shall be performed in accordance with the Rhode Island LRFD Bridge Design Manual, with particular reference to the report entitled “Guidelines for Geotechnical Site Investigations in Rhode Island, Final Report,” dated March

2005, RIDOT TAC 0346, and all other investigations required for design and construction. This additional work shall also be included in the proposal price.

The DB Entity shall meet all requirements and obtain all governmental approvals necessary for geotechnical explorations, including “Dig Safe” requirements, and all approvals and permits required for access road grading, drilling, and groundwater protection from inter-aquifer contamination.

3.12.5. Geotechnical Reports

Final Design geotechnical reports shall be prepared for each structure and submitted by the DB Entity as part of the final design. The reports shall be prepared in conformance with requirements of the Rhode Island LRFD Bridge Design Manual and all applicable RIDOT TAC’s.

3.12.6. Geotechnical Design Approach

All geotechnical analysis, design and report preparation shall be completed in conformance with the Rhode Island LRFD Bridge Design Manual and the AASHTO LRFD 8th Edition unless otherwise approved by the State. The DB Entity shall clearly identify in the Proposal the methodology for geotechnical analysis and design to be used in the Final Design.

As outlined in Part 1, the DB Entity shall submit, at the times required, a written statement of their approach to Geotechnical Engineering in the Final Design under this Project. The statement shall be updated at each step as required. The intent of the statement and any related discussion is to confirm the DB Entity’s understanding of the geotechnical requirements under this Project and the responsibility of the DB Entity for the geotechnical engineering and design required as part of the Final Design.

3.12.7. Modifying Existing Foundations

The Project consists of widening of the existing West Abutment, Pier 1, Pier 2, Pier 3, and Pier 4, of the Washington Bridge, and Pier 3R of the existing Gano Street Ramp. The widening of these substructures will require design and construction of new deep foundation elements and re-use of existing pile foundations. If existing pile foundations are exposed as a result of construction activities, the Contractor shall utilize pile hammer and dynamic pile testing to verify the capacity for one existing pile in each pile group. New foundation elements shall be load tested to verify the design resistance. All pile testing shall be in accordance with RIDOT Standard Specification Section 804.

Construction adjacent to existing pile foundations to remain shall address the following, at a minimum, in the design submission as well as the statement of geotechnical intent:

a. Effects on staging and sequencing
b. Potential harmful effects during construction on structures remaining in service
c. Details of connection to the new structure
d. Remaining service life of the in-place foundations
e. Details of the proposed field-testing program to confirm in-place capacity

3.12.8. Foundation Design

The DB Entity shall prepare a geotechnical interpretive report (GIR) indicating design bearing and geotechnical pile capacities and determine the final bearing pressures, pile design, and reactions under the AASHTO LRFD 8th Edition.

The stability and bearing resistance evaluations by the DB Entity for the foundations as part of the final design shall include all construction activities, construction staging, groundwater table, final ground surface, and temporary and final load condition on the foundations. The DB Entity shall demonstrate that the proposed designs meet both strength and serviceability requirements of the latest Rhode Island LRFD Bridge Design Manual and the applicable Geotechnical guidance documents.

Unless determined otherwise by the Geotechnical engineer retained by the DB Entity, and accepted by the State, design parameters for newly installed backfill shall be as listed in the Rhode Island LRFD Bridge Design Manual and the RIDOT Standard Specifications for Road and Bridge Design.

3.12.9. **Retaining Walls and Embankments**

New retaining walls are required in several areas of the project. Proprietary walls may be Prefabricated Modular Walls, Mechanically Stabilized Earth (MSE) walls, or Geosynthetic Reinforced Soil (GRS) walls from the RIDOT Approved Products List. Conventional concrete gravity or cantilever walls may also be used. Additionally, soldier pile and permanent lagging walls may also be used provided a façade is provided in front of the soldier pile and lagging wall so it is not visible to traffic.

Retaining structures shall be designed in accordance with the latest edition of the Rhode Island LRFD Bridge Design Manual, AASHTO LRFD 8th Edition and AASHTO Standard Specifications for Highway Bridges.

Ground improvement methods may be necessary where new retaining walls and embankment fill are underlain by fill and organic soils, in order to limit settlement and to improve global stability. Alternately, driven or drilled pile foundations may be used. Protection of buried utilities may require use of lightweight or ultra-lightweight fills in new embankments and retaining walls and/or structural support/enhancements for protection against added stresses.

The DB Entity shall complete design of internal, external, and global stability of retaining walls and embankments as part of the final wall design. The wall designer is required to be on-Site for construction monitoring and Quality Control of the construction of the MSE and Prefabricated Modular Walls to ensure that the construction is consistent with the design assumptions.

3.12.10. **Geotechnical Monitoring**

Geotechnical instrumentation shall be used to monitor existing structures within 200 feet of driven piles or other vibration producing activities during construction. The DB Entity shall conduct pre- and post-construction condition surveys of each structure within the influence area. The DB Entity, and their Geotechnical Engineer shall determine acceptable movements and vibrations that adjacent structures can safely accommodate, in accordance with accepted practice. The DB Entity shall design instrumentation for adjacent structures appropriate for potential construction impacts. Threshold and limiting values for instrumentation readings shall be determined to limit construction impacts to acceptable levels, in accordance with accepted practice. The instrumentation limit values shall be selected so that construction can proceed with the ability to modify operations before unacceptable damage occurs should impacts be greater than anticipated.

3.12.11. **Geotechnical Design Criteria**

In addition to requirements identified above, the DB Entity shall be responsible to:

a. Provide all final design and details for all bridges and retaining walls.

b. The DB Team shall design all temporary earth support systems required for the Project. Any temporary earth support systems that the Contractor finds necessary to remain in place at the end of the project, including items that are impractical to remove due to design, construction staging or other functional requirements shall meet the “Buy America” regulations.

c. Select dewatering systems based on their construction means and methods.

d. Protect existing structures.

e. Determine the seismic site classification and evaluate the potential for seismic induced liquefaction, as necessary.

3.13. Bridge Design and Other Structures

3.13.1. General

The general scope of the Project is based on the BTC Drawings and Special Provisions, except as modified herein. The Project includes the construction of a new Waterfront Drive Off-Ramp Bridge, Gano Street On-Ramp Bridge, rehabilitation and strengthening of the Washington Bridge North No. 700 and widening of the Washington Bridge North in Spans 1 through 4 between the existing Gano Street Off-Ramp and the proposed Gano Street On ramp. Accelerated Bridge Construction techniques may be used on some or all the work to minimize the impact on existing traffic and to reduce the overall project schedule.

The general scope of work shall include the following anticipated work included in the BTC:

Current Bridge #	New Bridge #	Bridge Name	Treatment
070001	070001	Washington Bridge North	Rehabilitation & Widening
	126601	Gano Street On-Ramp Bridge	New
	126701	Waterfront Drive Off-ramp Bridge	New

3.13.2. Preconstruction Survey of Existing Structures and Construction Monitoring

The DB Entity shall conduct a pre-demolition survey and establish and maintain a program of construction monitoring for existing properties within 200 feet (unless otherwise noted) of proposed construction activities.

The DB Entity shall contact owners of the adjacent properties and make arrangements for access to the facilities for the purpose of surveying and monitoring. Requirements generally include the following items.

a. Buildings adjacent to Construction – survey of building structure, vibration monitoring system,
b. Walk through video including foundations, walls, windows and doors
c. Landscape Elements – trees to be protected.

The existing structures and facilities within the vicinity of this project not being altered by the construction activities shall be protected from damage during any demolition. Prior to the start of construction, the DB Entity shall document the condition of the existing facilities. The State may review the documentation for accuracy. During and after construction, the DB Entity shall re-evaluate the condition of these facilities. If damage from construction activities to said facilities is noted, the DB Entity shall repair the damage at no additional cost to the State. The DB Entity shall conduct a post construction survey to document the final condition of all existing properties covered under this program. The pre- and post-construction surveys shall be done by a licensed professional engineer registered in the State of Rhode Island.

The DB Entity shall submit to the State copies of the initial documentation as well as the results of periodic (monthly) monitoring and final documentation of conditions.

The Hunter S. Marston Boathouse located at 258 India St, Providence RI has been identified as a historic structure. While this structure is located just outside of the 200 foot zone of construction activities, this structure shall have a preconstruction survey and be monitored in accordance with this section.

3.13.3. Protection of Persons and Property during Construction

The DB Entity shall ensure the safe passage of persons, vehicles and bicycles around the areas of demolition and construction and prevent injury to persons and damage to property through the use of appropriate temporary shielding, protective barriers and enclosures.

The DB Entity shall take care not to damage portions of any structure that is to remain a part of the Project or private property that is adjacent to the construction area. Any item damaged, or otherwise made incapable of continued use due to demolition or construction operations, shall be repaired or replaced with an equal or better product by the DB Entity at its own expense and at no expense to the State.

The DB entity shall provide adequate shoring and bracing to prevent unstable structures from collapsing. During the prosecution of the work under this Section, the State may reject the use of any method or equipment that causes undue vibration or damage to any part of the remaining structure or adjacent structures. The DB Entity shall take effective measures to prevent windblown dust and erosion.

The DB Entity shall take precautions beyond normal operating procedures for the purpose of minimizing or eliminating dust caused by demolition. The DB Entity should meet with the adjacent property owners to consider means for mitigating the negative effects of dust on their operations. If during the course of the work, the State deems that the dust accumulation on the adjacent properties is excessive, the State will order a cessation of the work until more effective means of dust control are established.

3.13.4. Maintenance of Bridges during Construction

The construction of this project is scheduled to run for several years. The Washington Bridge North Bridge 700 is in poor condition. The DB Entity is responsible for maintaining this bridge for the duration of the project. The following maintenance work may include, but is not limited to the following:

a. Patching of spalls and holes in the bridge deck

b. Patching failing asphalt overlay

c. Repairs or replacement of existing joints

The determination of need for maintenance work shall be as directed by the State/Resident Engineer. An estimated cost has been included as a schedule of value in the lump sum base bid as follows:

1.13.2 Bridge and Roadway Special Maintenance FHWA Participating

1.13.3 Bridge and Roadway Special Maintenance FHWA Non-Participating

The actual cost of the work shall be billed and paid for to reflect actual costs incurred, as described in Section 109.04a.4 force account basis. This effort will include all necessary traffic control, material, equipment and labor necessary to complete the maintenance work as directed.

3.13.5. **Graffiti during Construction**

The Contract requires furnishing and installing an anti-graffiti coating system on exterior exposed surfaces of bridges and retaining walls. The surfaces protected shall be clean and free of all graffiti at the completion of the project at the time of final acceptance, in accordance with Section 842 Anti-Graffiti Coating. The construction of this project is schedule to run for several years, and it is anticipated that there will be on-going graffiti in the project area. All graffiti is required to be removed by power wash, painted or other means, as directed by the State and/or Resident Engineer. The graffiti shall be removed on the next business day.

The actual cost of the work to remove graffiti during construction shall be billed and paid for to reflect actual costs incurred, as described in Section 109.04a.4 force account basis, under Item 1.31. Bridge and Roadway Special Maintenance. This effort will include all necessary traffic control, material, equipment and labor necessary to complete the work as directed.

3.13.6. **Demolition of Structures**

Preliminary BTC Plans have conceptually been developed for the partial demolition of the existing Washington Bridge to accommodate the future widening.

Demolition and removal shall include but not be limited to the partial demolition of the existing fascia arches, bridge deck, pylons, existing piers, abutment and wingwall, as well as the demolition of the existing bridge rail within the limits of the bridge widening (unless otherwise shown in the BTC). Piling may be left in place. The Project demolition work consists of removal and disposal of the existing bridge and wall elements as shown in the BTC Drawings and as required by the Final Design.

Demolition shall be consistent with the anticipated construction staging plans. For partial demolition, the DB Entity shall design temporary falsework, framing or foundations to ensure that the remaining portions of the bridge are safe and functional in all stages of construction.

The existing bridge superstructures and all portions of the substructure and all walls subject to demolition shall become the property of the DB Entity, except insofar as the existing elements are to be incorporated into the Project.

Condition of Structures:

The State assumes no responsibility and makes no claim as to the actual condition or structural adequacy of any existing construction to be demolished. The DB Entity shall investigate and assure itself of the condition of the work to be demolished and shall take all precautions to ensure the safety of persons and property on or near the Site.

Utilities:

The DB Entity shall maintain and protect all utilities, including but not limited to those exposed, covered, structure mounted, buried underground and overhead, except those requiring removal, for which the DB Entity shall maintain and protect the utility until such time it has been removed from service by the owner. The DB Entity shall be responsible for adequately protecting existing utility lines, so that they can remain in service. If any utilities are damaged due to the DB Entity's operations, the DB Entity shall repair them at its expense.

The DB Entity shall identify and protect all utilities from damage during demolition. If the DB Entity elects to allow debris to fall onto the ground or onto surface streets during demolition, it shall coordinate with the utility owners regarding protection of all utilities.

Traffic:

The DB Entity shall coordinate and conduct operations and removal of debris to ensure minimum interference with the normal use of public ways and other adjacent facilities. The demolition process shall be in accordance with the approved Conceptual Sequence of Construction Phasing Plans, BTC Draft TMP with Attachments and Maintenance and Traffic Control Plans prepared by the DB Entity. The allowable times when lanes and shoulders can be closed are shown in the BTC DRAFT TMP included in Appendix B. Modifications of the MPT plans during construction will require coordination with the State, the City of Providence, City of East Providence and local businesses.

The DB Entity shall not close or obstruct traffic on streets in addition to those shown in the approved MPT plans without the written permission of the State to do so.

Salvage:

All materials removed not to be re-used for the proposed structure shall become the property of the DB Entity and shall be removed from the Site. Disposal of materials shall be in accordance with all local, state and federal regulations.

Explosives:

The use of explosives in the demolition process will not be permitted under any circumstances.

Construction Staging:

The demolition work shall be coordinated with the intended staging of construction proposed by the DB Entity.

The demolition of portions of the bridge shall be performed during available lane and roadway closures such that demolition is not performed over open lanes of traffic.

Submittals:

The methods and schemes proposed for demolition shall be prepared under the supervision of a Professional Engineer registered as such in the State of Rhode Island and Providence Plantations. Such Engineer shall be familiar with these specifications, those of AASHTO, the State's Blue Book, and the Project, and shall be experienced in the relevant technical field. All drawings and calculations shall be stamped with the seal of the Professional Engineer.

The DB Entity shall be responsible for submitting the following information to the State for review and approval:

1. Materials Disposal Plan

a. Identifying off-Site disposal locations.

b. Agency certification(s) for off-Site disposal locations.

c. Prior to the submission of a periodic invoice for payment for work including materials disposal, all disposal receipts from the solid waste facility or the recycling site shall be submitted to the Resident Engineer. Such receipts shall bear the printed name of the facility operator and shall specify the date of delivery and the quantity and type of material delivered and shall be signed by an on-site representative of the facility operator. No payments will be made for the disposal of materials for which there are no signed disposal receipts.

2. Demolition Plans

A demolition plan shall be submitted for each structure/partial structure to be removed. A demolition plan indicating procedures, sequence of operations, placement of shields, barriers, equipment types and placement, dust control, and plan of demolition. The demolition scheme shall be coordinated with proposed construction staging and MPT Plans. As a minimum, the following information shall be included in the submittal.

a. Plan(s) showing the location of all roadways, utilities, structure to be removed, adjacent structure(s) not included in demolition, protective barriers and shielding as required, and other appurtenances in the vicinity of the demolition area.

b. Proposed work area including right-of-way lines and easement lines.

c. Calculations for all temporary supports and existing elements to remain during stage construction. If cranes are proposed to be placed behind existing abutments or walls, calculations shall be submitted demonstrating adequate resistance to sliding and overturning.

d. Approximate location of loading areas for trucks used to remove debris and beams.

e. Identification of crane type and model, crane set-up location(s) and intended operating radii and pick loads.

f. Crane and lifting equipment technical information, including rating data. Information shall include equipment geometry, weight, boom-lift capacity, and crawler pressure tables.

g. Identification of the order and sequence for the use of lifts and the repositioning of equipment; and intended pick weights.

h. If applicable, identify methods and materials proposed for temporary structures or strengthening of specific structural members for stability during the demolition process.

i. Identification of other equipment proposed for use in the demolition process.

j. A schedule of demolition operations identifying their durations and sequence.

k. Any other pertinent information that describes the proposed demolition procedures and activities.

Any acceptance of the above-described submissions by the State shall not relieve the DB Entity of complete responsibility for all demolition procedures and operations and their effects.

3.13.7. **Bridge Design and Construction**

Preliminary BTC design plans have been developed for the proposed rehabilitation of the Washington bridge and the proposed new bridges, including general layout of each new bridge. These plans and layouts are schematic only and are not guaranteed. Notes are included on the plans that indicate the design and detailing requirements for each bridge. Unless otherwise indicated, vertical clearance for the Washington Bridge shall not be less than the existing clearance. The vertical clearance for the proposed Gano Street On-Ramp shall not be less than 14'-3" over the newly constructed shared use path and 16'-0" over Gano Street. The vertical clearance for the proposed Waterfront Drive Off-Ramp Bridge shall not be less than 14'-3". The DB Entity is responsible for the complete design, detailing, and construction of each new and rehabilitated bridge.

The DB Entity acknowledges by receipt of such documents that it explicitly understands that while these plans have been advanced to a certain level, the DB Entity shall be required to provide a final, complete Project design stamped, sealed, and certified by a Professional Engineer, for review and approval by the State and possibly third parties. The Professional Engineer shall be registered as such in the State of Rhode Island and Providence Plantations.

The scope of work includes, but is not limited to, design and construction of all new bridges and bridge widening as needed to support the proposed roadway layout in the final design. Also to be included is all design and construction related to the rehabilitation of the existing Washington Bridge North No. 700. All work shall conform to the requirements and concepts shown in the BTC plans and the work described below.

The BTC plans detail the general configuration and elements/treatments that have been developed through the preliminary design phase, including incorporating input from coordination with environmental permitting agencies, utility coordination, and during outreach to community officials that has occurred for the Project. Elements including, but not limited to, the substructure foundation design, pile quantities and layouts, and bridge scuppers have only been shown conceptually and are not designed. The roadway alignment, profile, and cross section shown on the BTC plans were developed through coordination performed for the Project. Final design of the bridge superstructure is required as part of this Project. Further details on the limitations for modifications in the final design are outlined in this RFP.

The DB Entity shall use Accelerated Bridge Construction (ABC) techniques where beneficial. It is anticipated that proposers will consider using techniques including, but not limited to, erection methods, prefabricated bridge units (PBU), lateral slide techniques, Self-Propelled Modular Transporters techniques, precast concrete deck panels, precast substructure elements, and additional work hours.

The DB Entity will finalize the bridge design in conformance with the latest Rhode Island LRFD Bridge Design Manual including supplemental memos and TAC's, AASHTO standards, and all other standards as applicable. A Bridge Rating Report in conformance with the RIDOT Bridge Design Manual and the RIDOT Guidelines for Load and Resistance Factor Rating (LRFR) of Highway Bridges and as-built replacement superstructure plans will be prepared by the DB

Entity after the bridges are constructed/rehabilitated, open for full beneficial use, and inspected by RIDOT.

The State has proposed the use of integral and semi-integral backwall designs wherever possible in order to provide jointless deck end conditions. The backwall would be attached to the ends of the bridge beams and connected to the deck via a reinforced concrete closure pour. The backwall would retain the backwall soils, support the approach slab ends and provide longitudinal resistance for seismic forces. Transverse seismic forces would be resisted with standard cast-in-place concrete keeper blocks. Where not practicable to incorporate integral or semi-integral backwall designs, deck over backwall design shall be incorporated.

The following sections contain information regarding bridges with more complexity requiring special design and construction techniques. The DB Entity shall determine the construction sequences and methods for the other bridges and structures.

3.13.7.1. **Washington Bridge Rehabilitation**

The Washington Bridge North consists of eighteen spans carrying I-195 WB over the Seekonk River and Gano St, Water St, Waterfront Drive, and Valley St. Except for span 7, spans 1 thru 14 consist of prestressed concrete drop-in beam spans with variable depth post tensioned cantilever beams. Spans 15 through 18 consist of prestressed concrete I beams. The superstructure is supported by multi-column pier bents founded on deep pile foundations. The beams support a reinforced concrete deck with a three-inch asphalt wearing surface. The proposed bridge rehabilitation and strengthening shall be constructed in phases, maintaining the minimum number of lanes shown on the BTC Conceptual Sequence of Construction Plans and in the Draft TMP with Attachments.

Consistent with best practices in the 1960's, the superstructure of Bridge No. 700 was designed with numerous deck joints. The benefits of the deck joints are in accommodating live load rotation of the girders and thermal forces in the structure whereby the joint relieves the stresses in the deck and mitigates the potential for deck cracking. However, over the last thirty years there has been a shift in design philosophy and now current best practice is to minimize the number of deck joints or to eliminate them entirely to minimize the amount of future required maintenance. The overall goal of this project is to provide a 25-year design life for the rehabilitated structure; therefore, the DB Entity shall design and construct the bridge strengthening and rehabilitation with a minimum design life of 25 years. The BTC plans show one way to achieve this using link slabs to eliminate as many deck joints as possible, preventing future deterioration of beam ends. It is not the intent of the project to replace bearings not explicitly shown on the BTC drawings. The Design Build Team may propose alternative methods, through the ATC process, to meet the 25-year design life goal, however preference will be given to proposals that minimize the amount of future required maintenance. The Design Build Team is responsible for any required retrofit or strengthening required by their proposal to achieve the 25-year design life. The DB Entity shall develop models and prepare design calculations as necessary to show their proposed method of rehabilitation will achieve this requirement. If link slabs are included in the DB Entities proposal, they shall be designed in accordance with the latest industry standards. The DB Entity may use the procedures outlined in MassDOT LRFD Bridge Manual, Section 3.5.2.5 as a guide. Please note that strengthening of beam ends and the east end

substructure pier caps, as shown in the BTC, is required regardless of if link slabs are proposed or not.

The DB Entity shall perform concrete repairs and crack sealing for the existing structure that is to remain and be reused, including but not limited to drop-in beams, precast beams, cantilevers, substructures, spandrel walls, and all other concrete items. All repairs shall be in accordance with the requirements provided on the BTC Plans and the RIDOT Standard Specifications. It is anticipated that 6,000LF of cracks will need to be repaired and sealed under this rehabilitation. All costs associated with repairing and sealing of cracks shall be included in Item 1.4.1 of Form N Cost Proposal Form.

Portions of the bridge superstructure currently have an LRFR Rating Factor less than 1.0 for the HL-93 Design Load when using analytical methods. The latest rating utilized a proof load test of the drop-in spans. The superstructure and piers 14 through 18 shall be strengthened. The Design Load for all strengthening and the determination of the need for strengthening shall be in accordance with RIDOT TAC 0347. At the end of the Project the rating of the rehabilitated superstructure shall achieve a minimum Rating Factor (RF), through analytical methods, equal to or greater than 1.0 for all Design loads, Legal Loads and for all Permit Loads and shall take into account differing behavior due to the addition of link slabs, including but not limited to differing effective bearing fixities. Bridge load ratings shall be as described in section 3.13.13 below.

To facilitate the structural concrete repairs and strengthening of the superstructure the DB Entity is responsible for the design and approval of Temporary Support and Jacking systems. This work shall conform to the applicable provisions of Section 824 of the Standard Specifications and its latest revisions. The work consists of designing and providing temporary support of the existing drop-in-span beams in spans 1 through 6 and 8 through 14 and the superstructure at piers 14 through the east abutment to allow for beam end concrete repairs and strengthening. This work will be paid for as described in Section 3.7.3 above.

During the rehabilitation and construction, the DB Entity shall ensure that their methods will maintain the stability of the structure and shall do no harm to the structure, and shall be responsible for the protection of exiting areas and details not undergoing rehabilitation including but not limited to end pylons, pier pylons, coping, etc.

There are buried utilities within the right-of-way of the project, including Valley Street and the Valley Street sidewalk against Abutment 2. The underground utilities include, but are not limited to gas, oil, water, sewer and electrical. The DB Entity shall be responsible for utility coordination including obtaining all necessary temporary easements and permission to access right-of-way to perform the work. Existing buried utilities shall remain in service, shall not have any additional loads imparted onto the utilities, and shall not be damaged as a result of construction activities, including the jacking and shoring operations. No work shall be permitted within utility right-of-way without written permission of the right-of-way owner. Excavation adjacent to utilities, if required by the DB Entity, shall be performed, supported, and maintained such that utilities remain undisturbed. The DB Entity's submittals that could impact utilities, including but not limited to temporary shoring,

shall be submitted to the Utility Owners and the State for their review and approval in sufficient time to meet the schedule including time for resubmissions. If DB Entity damages a utility, she/he shall repair the utility at no additional cost to the State or Utility owner. Utility Owners may have additional requirements that shall be met by DB Entity at no additional cost to the State or the Utility Owner. The DB Entity shall also note that there are understructure luminaries, utilities, and scuppers attached to the face of piers and abutments that may need to be moved and supported temporary.

In addition to work listed above, the rehabilitation shall include but not be limited to the following items.

a) Demolition and complete replacement of the bridge barrier along both sides of the Gano Street Off-Ramp. The new bridge barrier shall be MASH compliant for geometry. The anchorage into the existing deck/top slab shall be designed for AASHTO TL-4 loading. The MassDOT CF-PL3 bridge barrier will be allowed;

b) Replacement of all junction box covers in the existing bridge parapets;

c) Replacement of the existing bridge joints that are to remain. Number of bridge joints and joint types shall be determined by the DB Entity following their design of the joint elimination as noted in other sections of this RFP;

d) Installation of waterproofing membrane;

e) Replacement of the bridge wearing surface;

f) Replacement of all sub-pavement drains;

g) Cleaning and flushing of all scuppers and bridge drainage pipes;

h) Repairs to bridge mounted overhead sign support structures and lighting;

i) Application of film forming sealer to the interior (road side) faces of all new and existing bridge barriers;

j) Partial demolition and replacement of existing bridge barrier and coping, as necessary to facilitate the installation of link slabs;

k) Removal and replacement of steel diaphragms in span 7, the navigation span;

l) Cleaning and painting of all structural steel girders, diaphragms, and bearings in span 7. The DB Entity shall make note that there is the possibility of a lead-based paint system being present;

m) Sealing of structural cracks in concrete (It is anticipated that 6,000LF of cracks will need to be repaired and sealed under this rehabilitation.);

n) Jacking of beams/girders to facilitate the structural concrete repairs, note that special attention shall be given to pylons and coping at piers 14 through 17;

o) Installation of “deck over backwall” details at all abutments;

p) Adjustment, replacement, and/or removal of seismic longitudinal restrainers, end diaphragms, anchor rods, bearings, pedestals, etc., as deemed necessary by the DB Entities design;

q) Repairs to manhole located in the gore area between I-195 westbound and the Taunton/Vets Memorial on-ramps to allow for temporary traffic to travel over it;

r) Application of anti-graffiti coating;

s) Removal of contaminated debris (pigeon guano) from the area behind abutment 1 and from within the Gano Street off-ramp box girders;
t) Installation of aluminum wire fabric at abutment 1 and the Gano Street off-ramp box girders to close off all openings, eliminating access for birds;
u) Removal and replacement of all existing bridge drainage pipes;
v) Electrochemical Chloride Extraction (see below)
w) Gore Area Reconstruction/ Strengthening (see below)
x) The wrapping of all concrete beam ends located below deck expansion joints (in the final configuration) with protective FRP wrap.
y) Replacement of all access hatches in the Gano Street off-ramp box girders.

The BTC plans show one potential approach to the rehabilitation construction of the Washington Bridge North No 700. The DB Entity may propose alternative means of rehabilitating this bridge so long as they meet the end requirements of the completed structure. Final acceptance of any proposed alternatives is the sole responsibility of the State. The northern most portion of the bridge shall be scheduled to be completed first.

Electrochemical Chloride Extraction

Electrochemical Chloride Extraction (ECE) was completed in December of 2018 on the pier caps at of piers 14 through 17 due to previously high chloride levels. (Test results and report of ECE provided in appendix). The pier caps were not cleaned and sealed following the extraction. The DB Entity shall be responsible for retesting the chloride levels in the pier caps, in accordance with System Operation and Maintenance Section 2b of the mandatory specification, Electrochemical Chloride Extraction, located in Appendix B. Utilizing the new test results, the determination of need for re-performing chloride extraction shall be evaluated by the DB Entity, and approved by the State, for ensuring a minimum of a 25-year design life of the piers. The test results and analysis guaranteeing a 25-year design life shall be submitted to the State for review and approval. An Estimated Quantity Item for ECE treatment has been included as a schedule of value in the lump sum.

If the DB Entity determines that further chloride extraction is not required, and the State agrees then the piers shall be cleaned and sealed as soon as possible (prior to another winter) to prevent further chloride contamination; the sealant shall be compatible to the DB Entity's pier strengthening methodology. if the DB determines that further chloride extraction is required the piers shall be cleaned and sealed within 30 days of completion of the chloride extraction.

Gore Area Reconstruction/ Strengthening

In spans 17 and 18 along each side of the gore area between the onramp and mainline, there is a longitudinal deck joint between the travel lanes and the gore area. There are also no diaphragms between prestressed beams under the main line and the gore area prestressed beams. Prior to the 2016 rehabilitation, the gore

area carried only dead load due to the presence of a raised median bounded by granite curbing. During the 2016 rehab, the raised gore area was removed and paved. The DB Entity shall evaluate the existing prestressed beams and diaphragms for any temporary or permanent load condition changes and strengthen / reconstruct the raised gore area if deemed necessary.

3.13.7.2. **Gano Street On-Ramp Bridge No. 126601**

The BTC for the Gano Street On-Ramp Bridge consists of 3 spans carrying traffic from Gano Street to I-195 westbound. The proposed bridge shall be a minimum of one 18-foot lane with 2-foot shoulders on each side. Construction at the West Abutment shall be coordinated with the construction activity for the widening and rehabilitation of the Washington Bridge and in accordance with the Draft TMP with attachments. The newly constructed shared use path within the alignment of the bridge, shall not be permanently impacted by the construction of the proposed on-ramp. If during construction, the path is temporarily impacted, it will be fully restored to its original condition by the Contractor. The shared use path shall remain open at all times, although redirection of traffic may be allowed based upon approval by the State.

The bridge as shown in the BTC plans has the potential for uplift in some bearings under Strength load combinations at the West Abutment. Uplift shall be considered in the bearing design, as well as the design of anchor bolts. Uplift under Service load combinations will not be allowed.

There are numerous underground utilities in the proposed construction area. Utility plans shown on the BTC plans should be considered approximate. All utility locations shall be verified by the DB Entity prior to commencement of construction. The existing utilities cannot be relocated without prior approval from the State.

Retaining walls will be necessary along the west edge of the north approach to the bridge. Retaining walls are required for both grading and to limit the impacts to the wetlands below. Retaining walls will also be required on the North end of the bridge on the west approach. Further details related to retaining walls can be found in section 3.13.8 below.

Deck drains on the bridge shall not be allowed.

The deck ends at the abutments shall extend over the new backwalls per the “Fixed Joints at Abutments” details for backwall Type I shown in the RIDOT Bridge Design Standard Details.

The proposed bridge railing shall satisfy AASHTO LRFD criteria for a TL-5 system and shall be MASH compliant. The MassDOT CF-PL3 bridge barrier will be allowed.

The BTC Plans show one potential bridge type and configuration. The DB Entity may propose alternative bridge types and span arrangements in their Proposal. Approval of any proposed alternatives is at the discretion of the State.

Design efforts shall not advance to final design (beyond 30% design) until final approval of the IJR and NEPA is received from FHWA (see Section 4.2)

3.13.7.3. **Waterfront Drive Off-ramp Bridge No. 126701**

The BTC for the Waterfront Drive Off-Ramp Bridge consists of a single simple span bridge carrying traffic from Taunton Ave and Veterans Memorial Parkway onto to I-195 westbound over the proposed Waterfront Drive Offramp. The proposed bridge roadway width shall match the curb to curb width of the existing on-ramp roadway which varies. Design efforts shall not advance to final design (beyond 30% design) until final approval of the IJR and NEPA is received from FHWA (see Section 4.2)

The construction of the bridge and ramp shall take place during the first phase of construction and shall be completed prior to the closure of the Gano St Offramp for rehabilitation work. The BTC plans were developed with accelerated bridge techniques and substructure and wall types chosen to enable an accelerated schedule. Construction shall be coordinated with the construction activity for the widening and rehabilitation of the Washington Bridge and in accordance with the Draft TMP with attachments. In accordance with the BTC M&PT plans, the construction of the Waterfront Drive Off-ramp Bridge is to be constructed offline with the Taunton Ave on-ramp closed and the Veterans Memorial Traffic diverted onto a temporary onramp constructed south of the proposed bridge; the construction of the walls and new off-ramp shall be completed once the bridge is complete and open to on-ramp traffic . The existing historical pylon located at the northeast corner of the Washington Bridge North shall be protected during the construction.

There are underground utilities in the proposed construction area. Utility plans shown on the BTC plans should be considered approximate. All utility locations shall be verified by the DB Entity prior to commencement of construction. The existing utilities cannot be relocated without prior approval from the State and the associated utility companies.

Retaining walls will be necessary along each side of the Waterfront Drive off-ramp. The BTC plans show the walls running under the bridge with stub abutments for grading. Further details related to retaining walls can be found in section 3.13.8 below. Deflection of the top of the wall shall be limited to 1.5% of the exposed height except in front of the abutments where the deflection shall be limited to 1”. Tiebacks, deadmen or other methods may be required to limit the deflections.

The abutments shall be supported on deep foundations.

Deck drains on the bridge shall not be allowed.

The deck ends at the abutments shall extend over the new backwalls per the “Fixed Joints at Abutments” details for backwall Type I shown in the RIDOT Bridge Design Standard Details.

The proposed bridge railing shall satisfy AASHTO LRFD criteria for a TL-5 system and shall be MASH compliant. The MassDOT CF-PL3 bridge barrier will be allowed. The BTC Plans show one potential bridge type and configuration. The DB Entity may propose alternative bridge, wall. and substructure types in their Proposal. Approval of any proposed alternatives is at the discretion of the State.

3.13.7.4. **Washington Bridge Widening**

The existing Washington Bridge carries I-195 Westbound over Valley Street, Water Street, Waterfront Drive, the Seekonk River and Gano Street. The majority of the length of the bridge consists of post-tensioned concrete cantilevers with prestressed AASHTO I-girder drop in sections. The piers consist of reinforced concrete stems

under the cantilevers with architectural pilaster details at the ends, founded on steel H-piles. The west abutment also includes a tie-down detail which is founded on steel H-piles. There is an existing ornamental spandrel arch in each span on both sides of the bridge. The east end of the bridge (Spans 15 through 18) consists of prestressed concrete I-beams supported on reinforced concrete pier caps and columns.

Currently, the bridge carries 5 lanes of traffic until the Gano Street Off-Ramp where the exit lane proceeds onto the ramp, and 4 lanes of traffic continue through. The existing bridge shall be widened in spans 1 through 4, along the north side of the bridge, to accommodate 5 full lanes of traffic continuing across the bridge. The crash attenuator currently located in the gore area between the Gano St. Off-Ramp and the mainline shall also be relocated and supported on the widened portion of the bridge to accommodate through traffic.

The BTC plans show demolition of the north architectural spandrel arches in spans 1 thru 4, partial demolition of the bridge deck and bridge barrier and modification of the existing piers in order to add one line of superstructure to match the existing, which includes new cantilevers and drop in spans. The east end of the cantilever on Pier 4 also includes a tie-down detail. The proposed bridge railing shall satisfy AASHTO LRFD criteria for a TL-5 system and shall be MASH compliant. The MassDOT CF-PL3 bridge barrier will be allowed. The existing cope along the bridge fascia shall be replicated along the widened portion of spans 1 thru 4, where it does not conflict with the proposed Gano Street on-ramp or the existing Gano Street off-ramp.

A longitudinal joint along the widened structure shall not be permitted. Deck joints in the widened structure shall be continuous with the proposed joints in the existing bridge deck which will be modified as part of the rehabilitation. The bridge decks for the existing Gano Street Off-Ramp and the mainline bridge deck shall remain separate structures with a joint between the two structures at the gore.

The existing substructure shall be modified as necessary to accommodate the new superstructure and widened deck. All existing conditions shall be verified prior to the commencement of any demolition or construction, including but not limited to the locations of existing battered piles and sheet piling. It is anticipated that the northern portion of the existing substructures will need to be demolished and rebuilt for the west abutment and Piers 1 through 3. This work will require additional piles to support the widened portion of the bridge. Pier 4 for the widened portion will also require partial demolition and require separate substructures, for the widening and for the tie-down, based on deep foundations. Existing and/or proposed piles at pier 4 may encounter tension and details shall be developed to accommodate such conditions.

The Design Build Team shall be responsible for performing an in-depth analysis of the foundations in order to ensure that all proposed and existing piles remain within the design capacity and are not overstressed by the widening modifications.

Modification of Abutment 1 and Piers 1 and 2 will require excavation and construction within the vicinity of existing utilities. The Design Build Team shall verify all utility locations prior to construction and protect in place during

construction. The Design Build team may temporarily reroute and reset or relocate with coordination and approval of the utility owner.

Pier 3 is located along the waterline and Pier 4 is located entirely within the Seekonk River. The area required for cofferdams shall be minimized as much as possible to limit disturbance to the river.

The north wingwall of the west abutment shall be partially demolished as shown on the BTC plans. Wall below this elevation, including existing foundations shall remain in place and undisturbed unless necessary for construction of the widening or new Gano Street On-Ramp. This area is to be encompassed by the proposed wingwall for the new Gano Street on-ramp bridge.

The existing historical pylon located at the northwest corner of the bridge shall be relocated as part of this Project. The final location of the relocated pylon shall be determined by the DB Entity and agreed to by the State.

The BTC plans show one potential approach to the widening of the Washington Bridge. The conceptual suggested sequence of construction of this bridge is depicted in the BTC Plans. Alternative means of building this bridge may be submitted as part of the technical proposal.

3.13.8. **Retaining Walls**

Retaining walls are required to maintain new or existing embankments to support the temporary and final roadway layout. All retaining walls shall be constructed entirely within the permanent right-of-way limits. The BTC plans show MSE Walls, soldier pile and lagging walls, and cast-in-place concrete retaining walls. The DB Entity will be responsible for determining final wall construction types. Where proprietary retaining walls are used, they shall be in conformance with RIDOT design criteria and requirements.

The BTC plans and specifications indicate which proprietary retaining walls are acceptable for use. It should be noted that the State maintains an approved proprietary retaining wall list. No other retaining wall suppliers may be used on the Project; however, a cast-in-place retaining wall may be substituted for the proprietary retaining walls listed.

All retaining walls other than those constructed of cast-in-place reinforced concrete shall provide a precast concrete facing material in the final condition with architectural form liner as indicated in the BTC plans.

3.13.9. **Design Criteria**

The design of all new bridges and structures and rehabilitation of existing structures shall comply with the following:

a. AASHTO LRFD Bridge Design Specifications, 8th Edition (AASHTO LRFD) as amended by the RIDOT Bridge Design Manual and the provisions provided herein. If any conflicts arise between the RIDOT LRFD Bridge Design Manual (excluding seismic) and the AASHTO LRFD design code, the more stringent design code shall govern.

b. Design shall be based on Load and Resistance Factor Design (LRFD) for HL-93 Live Loading including the provisions of RIDOT TAC 0347.

c. All new bridges shall be designed and constructed with a minimum design life of 75 years. (this is prescribed in AASHTO)

d. Seismic Analysis and design shall be in accordance with the AASHTO LRFD Bridge Design Specifications (AASHTO LRFD), the Rhode Island LRFD Bridge Manual and the Washington Bridge South, Bridge # 200 Site Specific Response Spectra provided in Appendix B.

All of the bridges shall be classified as critical.

HORIZONTAL DESIGN RESPONSE SPECTRA			
UPPER LEVEL EARTHQUAKE (3% IN 75 YEARS, 5% DAMPING)		LOWER LEVEL EARTHQUAKE (15% IN 75 YEARS, 5% DAMPING)	
PERIOD (SEC)	Sa (g)	PERIOD (SEC)	Sa (g)
0.02	0.191967	0.02	0.057753
0.0303	0.191677	0.0303	0.057986
0.04	0.286730	0.04	0.107371
0.1	0.297549	0.1	0.118759
0.2	0.240691	0.2	0.094601
0.4	0.138647	0.4	0.054377
1.0	0.052417	1.0	0.021865
2.0	0.013104	2.0	0.005466

See additional site-specific earthquake information in appendix B.

e. AASHTO/AWS D1.5 Bridge Welding Code, 2015. No welded attachments other than cross frame connection plates are allowed to a tension area of any member.

f. All structural steel material for girders, cross frames, diaphragms as well as other steel details for the Gano Street On-Ramp shall be new steel conforming to AASHTO M 270 (ASTM A709) HPS Grade 50W.

g. All structural steel material for girders, cross frames, diaphragms as well as other steel details for the Waterfront Drive Off-Ramp shall be new steel conforming to AASHTO M 270 (ASTM A709) Grades 36 and 50 as indicated on the BTC Plans.

h. Steel girders for the Waterfront Drive Off-Ramp Bridge shall be metalized and painted in accordance with RIDOT Standard Specifications. The standard color for Waterfront Drive Off-ramp Bridge shall be Blue (Semi-Gloss) to match Munsell Color 2.5PB 5/10 per RIDOT guidance.

i. Steel girders for the navigation span of the existing Washington Bridge (span 7) shall be painted in accordance with RIDOT Standard Specifications. The standard color for the repainting of the navigational span of Washington Bridge (span 7) shall be Blue (Semi-Gloss) to match Munsell Color 2.5PB 5/10 per RIDOT guidance.

j. Steel girders for the Gano Street On-Ramp bridge shall be unpainted weathering steel.

k. The DB Entity shall provide structural design for all traffic signal supports, sign supports, conduits and utility attachments to the steel structural members. All such design details and attachments that are not characteristic of infinite fatigue design life are not allowed.

l. Maximum deflection due to Live Load including Dynamic Allowance (LL+IM) shall be in conformance with RIDOT requirements outlined in Section 2.5 of the RIDOT LRFD Bridge Design Manual. For bridges without a sidewalk, the deflection limit for vehicular live load including impact is limited by L/800.

m. Bridge utilities shall be supported by the superstructure and detailed so as to be accessible for future maintenance, replacement, and/or upgrading.

n. For bridge decks to be Cast-In-Place (CIP), stay-in-place forms may be used. SIP forms will not be allowed for deck overhangs.

    a. The use of SIP forms shall be in accordance with the RIDOT LRFD Bridge Design Manual and RIDOT Bridge Design Standards.

o. The DB Entity shall design shear blocks to resist lateral seismic design loads. Only interior shear blocks shall be provided to resist seismic loads.

p. An anti-graffiti coating is required on all exposed concrete surfaces of all bridges and walls under this contract in accordance with the Specification for Section 842 – Anti-Graffiti Coating. The anti-graffiti coating shall be applied over the fully cured Concrete Surface Treatment – Protective Sealer. The final topcoat color of the protective sealer shall be gray, and the anti-graffiti coating shall be clear and shall be the non-sacrificial type

q. Snow fences are required on this project on all bridge spans over roadways and on retaining walls adjacent to roadways.

r. The DB Entity is responsible for providing a fully detailed monitoring scheme which serves to verify that the existing bridges and their foundations are not being damaged during proposed construction.

s. The DB Entity is required to maintain a 30’ buffer between any existing substructure foundation and any material stockpile.

The DB Entity’s Final Design shall conform to the RIDOT Bridge Design Manual, with the amendments to the following Sections of the Bridge Design Manual:

Section 1.4.2 – A final design that includes one or more fracture critical members will require prior approval of the State. All fracture critical members shall include the use of bolted members in tension areas unless it can be proven infeasible.

Section 1.4.3 – All bridges shall be designed using an Operational Importance load modifier of 1.05.

Section 2.1.2.1 – Proposed minimum vertical clearances over the roadways should be maintained as shown on the BTC Drawings but shall not be less than the minimum required per Section 3.9.2 Roadway Design Criteria except where design exceptions are noted.

Section 2.3 – Bridge Structure Types - The following bridge types will not be accepted in the final design:

a. The use of butted precast prestressed concrete box beams;
b. precast three-sided concrete structures;
c. cast-in-place concrete slab; and
d. timber bridges

Section 3.6.4 – All bridges shall be classified as "Critical" for the determination of performance objectives.

Section 5.9.2.3 – All paved bridge decks shall receive a Membrane Waterproofing. All membranes shall be listed on the Rhode Island Department of Transportation Approved Materials List for Transportation Construction Projects.

Section 6.2.2 – Structural Steel

All Structural Steel shall be new steel conforming to AASHTO M 270 Grade 50, HPS Grade 50W or HPS Grade 70W. All new steel shall receive a metalizing coating system with a paint coating.

Section 9.6.9 – Stay-In-Place Forms and Bridge Decks

If utilized, stay-in-place forms shall follow the requirements below:

a. The use of steel stay-in-place forms shall be in conformance with the Rhode Island LRFD Bridge Design Manual and the Rhode Island Bridge Design Standard Details.
b. The use of precast stay-in-place forms will not be allowed.

Bridge Decks:

Bridge Decks shall be cast-in-place concrete constructed of High-Performance Concrete.

All paved bridge decks shall receive a 3" minimum bituminous wearing surface applied over a membrane waterproofing.

Steel Box Girders:

The use of steel box girders will be allowed, provided that they can meet the following conditions:

a. The inside vertical clearance of all boxes, measured from top of the bottom flange to the underside of the concrete bridge deck, at any point along the length of the box with the exception of at the openings in interior diaphragms, shall be no less than 72".
b. All surfaces of the interior of box girders shall be painted white with marking designating station locations every 20' within the box girder.
c. Stay-in-place forms, if used with box girder structures will be allowed for the portion of the bridge deck located directly over the interior and between the webs of each steel box girder. SIP forms will not be allowed for deck overhangs and for portions of the bridge deck located between box girders, as these areas are accessible for formwork removal.

3.13.10. **Accelerated Bridge Construction**

The use of Accelerated Bridge Construction is encouraged and most likely required for this Project. One of the goals of the Project is to minimize its interference with the Project on the traveling public. Prefabricated bridge elements and systems are proposed in order to minimize

the detrimental effects of the construction. Accelerated bridge construction is shown on the Waterfront Drive Off-ramp Bridge BTC Plans. The following are brief descriptions of the potential ABC technologies that may be used:

Prefabricated Beam Units (PBUs): PBUs consist of two or more beams that are topped with a concrete deck in a PCI-certified concrete fabrication facility. PBU design shall conform to the following criteria:

a. The design of the beams shall be based on the assumption that the precast concrete deck is equivalent to a cast-in-place concrete deck. The concrete in the closure pours may be treated as a composite dead load.

b. The design of the deck is the same as for a cast-in-place concrete deck. The AASHTO Strip method shall be used for the design of the reinforcing in the deck.

c. Other provisions for cast-in-place concrete decks specified in the AASHTO LRFD Bridge Design Specifications shall also be followed. The design strength of the concrete shall be based on a compressive strength of four (4) ksi. The closure pour connection may be designed for a lower interim strength that it is anticipated will exist at the completion of curing. If this approach is taken, the final strength shall still be four (4) ksi minimum.

Precast Concrete Full Depth Deck Panels: This consists of full depth precast concrete panels that are made composite with the supporting beams: Precast Concrete Full Depth Deck Panels shall conform to the following criteria:

a. Any precast concrete deck panels shall be designed with mild steel reinforcement. A Proposal that includes a design utilizing prestressed or post-tensioning for the strength design of the precast concrete deck panels will not be allowed.

b. Panels greater than 30 feet in length shall have prestressing designed to resist lifting and handling forces. The panels shall be designed for zero tension under all conditions during lifting and handling.

c. The connection between panels in the strength direction shall be via a fully reinforced concrete closure pour. Ultra-high-performance concrete (UHPC) may be used for closure pour connections.

d. The connection between adjacent panels in the distribution direction shall either be post-tensioning conforming to the AASHTO LRFD Bridge Design Specifications or via a fully reinforced concrete closure pour.

e. Any deck slab constructed of precast panels may include cast-in-place concrete in areas for which the use of precast concrete is not feasible, including over piers, at the bridge ends over abutments and in areas of intersection girders. The cast in place concrete areas of the deck slab shall conform to all requirements of the RIDOT LRFD Bridge Manual.

f. Inserts cast into or drilled into the precast deck panels or the cast-in-place concrete closure pours for the support of utilities or other functions will not be allowed. Inserts cast into the precast panels for temporary support of forming for closure pours will be allowed provided that the inserts are protected from corrosion in the final condition.

g. The design and detailing of precast concrete deck panels shall include an extra ½" of sacrificial thickness to allow for grinding to achieve the required longitudinal and

transverse profiles. In order to achieve the final longitudinal and transverse profile of the bridge deck, it may be necessary for the DB Entity to diamond grind the entire deck surface to match the final profiles (exclusive of areas which will be covered by the sidewalks). The design of the deck and beams shall be based upon the minimum final thickness of the deck for the computation of structural properties. Cover on reinforcement within the deck panels shall be based on the minimum cover provided after sacrificial grinding.

The RIDOT will accept a final design that does not include an extra ½" of sacrificial concrete thickness in the precast panels and subsequent grinding after installation to achieve the required longitudinal and transverse profiles provided that the designer can demonstrate the panel dimensions will achieve the required profiles with no more than ¼" variations (+ or -) in the 3" pavement thickness due to panel dimensions creating a chorded profile.

Lateral Slide and Self-Propelled Modular Transporters (SPMTs): These technologies can allow for rapid installation of bridge superstructures.

No national design and construction specifications exist for these technologies. If used, the Utah DOT Structures Design and Detailing Manual is recommended for design and construction guidance.

Semi-Integral Backwall: This technology consists of backwalls that are integral with the beam ends. Semi-integral backwalls can be used to facilitate ABC due to the simplicity of the connection of the superstructure and the substructure. This technology is recommended for Lateral Slide Techniques, SPMT Techniques, and PBUs.

The backwalls shall be designed to resist the soil forces (active (including surcharge), passive (due to seismic loads and thermal movement) and approach slab loads. The reinforcement in the backwall may be designed as one-way reinforcement (vertical or horizontal) or as two-way reinforcement. The support for resistance of backwall forces shall be the beam end and the integral deck connection.

Link Slabs: Link slabs are continuous deck sections that span across beam ends at piers. Link slabs allow for span-by-span construction without beam continuity. Link slabs can be used to facilitate ABC due to the elimination of in-span splices of girders.

The concept of link slabs entails designing the connection of the deck across the pier in order to accommodate the rotation of the beams without the occurrence of significant cracking. This is done by de-bonding a small portion of the deck near the pier, allowing for a wider spread of the live-load rotation strain. Link slabs provide a jointless deck connection without the complexities of developing a continuity connection. The design of the link slabs should be based on the PCI Journal Paper entitled "Behavior and Design of Link Slabs for Jointless Bridge Decks" (Caner and Zia, Journal of the Precast Prestressed Concrete Institute, May-June 1998).

3.13.10.1. Assembly Plan

The DB Entity will be responsible for the development of an Assembly Plan document during construction for each bridge employing ABC methods. The Assembly Plan shall be considered a Working Drawing and shall be certified by a Professional Engineer, registered in the State of Rhode Island and Providence Plantations, with specific knowledge of the Contractor's equipment and "means and methods".

The Assembly Plan shall be submitted to RIDOT for approval and shall include, but not necessarily be limited to the following requirements:

a. Step-by-step assembly sequence detailing the overall construction process including a detailed timeline for all operations. Account for setting and cure time for grouts and concrete closure pours.

b. Details of any formwork for closure joints including methods for attachment to the adjacent prefabricated elements.

c. Details of all materials to be used for the construction.

d. Methods and materials to be used for casting and curing concrete closure joints.

e. Estimated timeframe of strength gain for concrete closure joints.

f. A statement of compliance with all requirements of applicable environmental permits.

g. Any weather limitations for the assembly work.

h. Details and/or information regarding all equipment that will be employed for the assembly of the bridge.

i. Details of all equipment and materials that will be used to lift elements including, but not necessarily limited to cranes, excavators, lifting slings, sling hooks, and jacks.

j. A site plan showing crane locations and operation radii. The plan shall also depict all affected utilities, drainage, and protective measures that will be employed throughout the construction activities. If multiple crane set-ups are required, include a separate plan for each crane set-up. The site plan should show the layout of multi-crane lifts (if required).

k. All lifting and handling calculations for each element.

l. Lifting calculations for all crane lifts. Lifting calculations for precast elements (i.e. backwalls, approach slabs, etc.) shall be in accordance with Chapter 8 of the PCI Design Handbook (seventh edition).

m. The DB Entity is responsible for determining the center of gravity for all elements. Special care shall be used for elements that are not symmetrical. These elements may require special lifting hardware to allow for installation to the proper grades shown on the plans.

n. Methods of adjusting and securing the elements after placement.

o. Methods for controlling erection tolerances for both the horizontal and vertical direction including any surveying requirements.

The DB Entity shall, for all crane locations demonstrate to the State that all utility company concerns, and comments have been addressed prior to the commencement of construction activities.

The DB Entity shall notify the State of the pre-assembly activity a minimum of thirty (30) days in advance and make arrangements for any inspections to be made by State representatives.

The DB Entity is responsible for obtaining all transport permits for prefabricated elements from the State of Rhode Island and Providence Plantations and any other state through which the units will be transported.

3.13.10.2. Geometry Control Plan

The DB Entity shall develop a geometry control plan for the assembly of prefabricated elements, and it shall be included in the Assembly Plans. The plan shall indicate in detail how the geometric detail of the erection will be controlled, and the actions required to assure proper erection of the structure to the dimensions and final grades shown on the plans.

The geometry control plans shall include details of the layout process (lines, marks, survey, etc.) that will be used by the erection personnel for checking the location and elevation of each element prior to releasing the element from the erection equipment.

The plans shall include provisions for regular monitoring of the structure during erection, and methods for adjusting geometry should unacceptable deviations occur.

3.13.11. **Submissions, Drawings and Calculations**

Plan development, drawings and calculations shall be in accordance with the RIDOT Bridge Design Manual and Bridge Standard Details.

The State reserves the right to hold over-the-shoulder meetings to review design progress. Calculations are required to accompany the final design plan submission.

3.13.12. **Materials and Samples**

Materials shall be as specified in the BTC. Approval of substitution for alternate materials is not guaranteed. Proposed changes of materials shall be submitted to the State for review and approval.

Currently there are some stockpiled materials located under the bridge off Water Street in East Providence. Upon award of this Contract those materials will become the property of the DB Entity and as such the selected DB Entity shall be responsible for the removal and legal disposal of any of these materials that remain unused at the completion of this Project. While some or all of these materials may be able to be incorporated into the DB Entity's final design and construction plans, RIDOT takes no responsibility for any aspect of the listed materials, including quantity, dimensioning, or existing condition. Stockpiled materials shall be inspected and approved by RIDOT prior to implementation into the Project. More information on the stockpiled materials can be found in the "Stockpiled Materials" folder under Appendix B11 RIDOT Miscellaneous.

3.13.13. **Bridge Ratings and Inspection**

Notification for Inspection – Prior to shifting traffic onto the new portion of any of the new bridge superstructures or the widened portion of the Washington Bridge, the DB-Team shall notify RIDOT at least 45 days in advance of completion, that the bridge is complete and ready for RIDOT inspection. As part of such inspection notice, the DB-Team shall submit As-Built Plans and Specifications for the bridges to be inspected.

RIDOT Inspection – After notification by the DB-Team and prior to opening the new section of the bridge superstructure for public use, RIDOT will perform an NBIS inspection of the bridge and provide information for the Resident Engineer's Punch List.

The DB Entity shall perform the Punch List tasks after the bridges have been constructed, inspected by the State, and opened to traffic.

The DB Entity shall be required to prepare Bridge Rating Reports for all three (3) bridge structures in this Project, in compliance with State of Rhode Island Department of Transportation Bridge Load Rating Guidelines, dated November 2019.

As a condition of final Project acceptance, the DB Entity will provide to the State a Structure Rating Report establishing the bridge-load carrying capacity for each of the bridges. This report will be prepared by a Professional Engineer registered as such in the State of Rhode Island and Providence Plantations, in full compliance with the current requirements of the State's Office of Bridge Safety and Evaluation (including CE General Memoranda on this subject).

The Load and Resistance Factor (LRFR) method of bridge rating shall be used. The ratings shall be completed using a State approved software package. If the Contractor uses AASHTOWare BrR they may request a special consultant or agency option for the license through the State, for use in connection with State bridges. The load rating shall be done utilizing analytical methods.

To provide an allowance against substandard ratings after the effects of future deterioration of members, all NEW bridges shall achieve a minimum superstructure Rating Factor (RF) equal or greater than 1.10 for all Design Loads, Legal Loads and for all Permit Loads and all rehabilitated bridges shall achieve a minimum superstructure Rating Factor (RF) equal or greater than 1.0 for all Design Loads, Legal Loads and for all Permit Loads.

3.13.14. **Wayside Noise Barriers and Other Structures**

Overhead sign supports and traffic mast arm pole foundations may be supported on Drilled Shafts. The attachment of new sign structures to bridges is prohibited. Existing sign structures attached to bridges may remain in place.

Materials shall be as specified in the BTC. Approval of substitution for alternate materials is not guaranteed. Proposed changes of materials shall be submitted to the State for review and approval.

Noise Barriers: Noise barriers will not be required on this project.

3.13.15. **Potential Alternatives**

The following alternatives may be considered for the design. These alternatives are not guaranteed to be found acceptable by the State and would need to be vetted by the DB Entity and submitted to the State for review and approval. This list is not all-inclusive. DB Entities are encouraged to submit other beneficial changes that are not listed below as part of their Proposal.

a. A final design that includes an abutment comprised of a spread footing supported on top of an MSE wall system will require the submission of details and backup calculations to the State for review and approval.

b. Precast concrete deck panels installed on steel girders built according to the PCI Northeast Bridge Technical Committee typical details (www.pcine.org).

c. Alternate Closure pour details making use of other materials and reinforcing details such as headed reinforcing bars or hooked bars. These details shall be sufficient to resist the forces in the deck as specified in the AASHTO LRFD Bridge Design Specifications.

3.13.16. Disallowed Alternatives

Alternatives or modifications to the BTC Plans that include the following items will not be accepted by the State.

a. Elimination of any of the spans of the existing Washington Bridge North, or any of the proposed bridge structures by means of filling between the spans shown on the BTC drawings.

b. Slip-formed concrete parapets.

c. Open railings in place of solid concrete barriers.

d. Bare concrete decks unless the DB entity completes a supplementary noise analysis showing a bare deck complies with the EA.

e. Partial-depth precast deck panels with a reinforced concrete topping.

f. Use of proprietary retaining wall systems not approved by the State.

g. Any superstructure modifications that would overstress the existing substructures and foundations.

h. Bridge Expansion joints within the length of deck except for the Washington Bridge North No. 700 where the number of bridge joints shall be reduced as shown in the BTC Plans.

i. Backwall systems containing expansion joints between the backwall and the bridge deck.

j. Use of soil nail walls as a permanent retaining wall without facing.

k. Use of soldier pile and lagging walls as a permanent retaining wall without a facing covering the soldier piles.

3.14. Architectural Elements

3.14.1. General

The general scope of the Project is based on the BTC Drawings and Special Provisions, except as modified herein. The Project includes the construction of the new bridges and retaining walls in and around the Washington Bridge North No. 700. The final design shall incorporate architectural elements as shown in the BTC Plans and as noted elsewhere in the RFP documents. The intent is to provide architectural features that are consistent within the project limits and context sensitive to the surrounding communities. All architectural features shall be aesthetically pleasing and be low maintenance for the owner.

3.14.2. Bridge Design and Construction

The scope of work includes, but is not limited to, design and construction of all new bridges and rehabilitation of an existing bridge, as needed to support the proposed roadway layout in

the final design. The bridges shall conform to the requirements and concepts shown in the Base Technical Concept (BTC) sketch plans and the work described below.

Plans developed shall include architectural details both in elevation and section views with sufficient detail to allow review by RIDOT of the final product and construction by the Contractor. Details and section views shall accurately portray all architectural elements both in dimension and layout.

The following sections contain information regarding architectural details required and structures requiring special design and construction techniques. The Contractor shall determine the detailing and construction for the other components.

3.14.3. Retaining Walls

The final design of all retaining walls shall include providing a simulated ashlar stone pattern (Fitzgerald Ashlar Pattern 16986 or Equivalent) through the use of form liners for cast-in-place concrete and precast concrete matching the pattern used on the I-95 Viaduct Northbound project. The stone pattern shall provide a maximum relief of 1 ½" measured from the back of grout lines to the outermost point of simulated stone pattern. The pattern shall not repeat more than once in every 60 square feet of area.

The contractor shall provide a mockup panel of at least 20 square feet in area demonstrating the final simulated stone pattern to be provided.

3.14.4. Other Structural Elements

Other structural elements that include architectural reference are:

a. New Bridge and Ramp Abutments to have architectural form liner that matches new retaining walls.
b. All retaining walls to include simulated ashlar stone pattern.

3.15. Drainage Design

3.15.1. General

The DB Entity shall inventory (and locate using GPS) the existing drainage structures within the project limits to confirm the type, size, condition, connections, inverts, etc. The BTC proposes limited changes to the existing drainage system as required to provide for the treatment of stormwater. In addition, existing drainage structures and pipes may require modification and/or protection in conjunction with the construction of temporary roadways as part of the required temporary traffic control plans. Finish grading shall be designed to direct surface runoff away from roadway and structures, to the extent possible. All structures shall be adjusted to temporary grades as required during construction and adjusted to final grade prior to the completion of each phase of construction and opening to traffic. Respondents shall assume that 50% of the existing drainage structures and frame and grates/covers will require replacement. The DB Entity shall also be responsible for the flushing and cleaning of all pipes and drainage structures within the limits of work, and the proper disposal of all debris associated with the cleaning and flushing. Cleaning and flushing of pipes and drainage structures shall be in accordance with RIDOT Standard Specification Section 708.

The DB Entity will be responsible for performing test pits, as needed, to meet RIDEM permit requirements and the Rhode Island Stormwater Design and Installation Standards Manual dated March 2015. See Section 4.3 on other permits. The DB should be aware that the requirements of the RIDOT Consent Decree and the requirements to meet the CRMC permit are different and will need to be addressed separately. The DB Entity will need to account for new pavement, full-depth pavement, and pavement mill and overlay quantities and address per the RIDOT Consent Decree and CRMC permit. The DB Entity will need to design the CRMC regulated Stormwater STUs to address impairments related to the receiving water impairments based on the 303d List Impaired Waters.

Drainage design shall consider all suggestions provided in TMDL's and Stormwater Control Plans for all appropriate receiving waterbodies. The designed STUs shall be contained within the state-owned or Public right-of-way (ROW); any work outside of ROW shall be submitted to the State for review and approval.

The proposed design for the Gano Street on-ramp shall include a closed drainage conveyance system that meets RIDOT and RIDEM standards, that conveys flow to the existing stormwater detention basin network, as shown on the BTC plans. DB Entity will be responsible for inspecting and removing sediment from the existing detention basin system. The DB Entity shall review the original design, as well as the 18 design modifications from 2001-present, to confirm the existing basin system can accept additional stormwater flow and continue to perform as designed.

The proposed design for the new Waterfront Drive off-ramp will include a closed drainage conveyance system that meets the RIDOT and RIDEM standards, that conveys flow to a proposed STU.

For the portion of Valley Street that is going to be abandoned will offset stormwater management by eliminating around 17,570 +/- SF of impervious area while still allowing for the area to be accessed for maintenance and inspection.

The DB Entity will be responsible for treating 100% of the HMA Asphalt, which is approximately a total of 78,550 +/- SF and treating 50% of the Mill & Overlay total area of 520,000 +/- SF. A Green Infrastructure opportunity has been identified at the gravel area in the vicinity of the shared use path at Washington Bridge/Gano Street, as shown on the plans. The DB Entity should investigate a bioretention basin/raingarden at this location for RIDOT to use this for stormwater credit off-set, as part of the BTC process, for the above noted areas. This may require to the DB Entity to re-route/disconnect existing drainage system to drain to this new STU. The DB Entity should work with RIDOT to include public outreach component for the bioretention basin/raingarden in the vicinity of the shared use path.

Stormwater and other drainage from the new construction shall be separated from the Narragansett Bay Commission (NBC) sanitary system through construction of new storm drainage systems and outfalls.

The DB Entity shall prepare a drainage design in the Final Design for all temporary and permanent conditions. The drainage analysis with calculations for pre- and post- conditions for the 1.2 inch, 1-year, 10-year and 25-year, and 100-year storms shall be included. The drainage analysis, including but not limited to watershed contributions, gutter flow, swale design, stormwater treatment units (STU’s) and pipe capacity, shall be included in the drainage design and shall follow the requirements of the Stormwater Management, Design and Installation

Rules (250-RICR-150-10-8), the Rhode Island Stormwater Design and Installations Manual Amended March 2015, the Rhode Island Department of Transportation Linear Stormwater Manual February 2019, and meet the RIDOT Consent Decree dated December 2015.

Submission and design of all drainage requirements for permitting shall conform to the 2008 RIDOT Highway Design Manual (September 2009 Rev 2-10-2009) as well as the Rhode Island Soil Erosion and Sediment Control Hand/Book (Issued 1989 (Revised 2014, Updated 2016)) and the Rhode Island Stormwater Design and Installation Standards Manual Amended March 2015. The contractor shall be responsible for obtaining any applicable permits including RIDEM, CRMC, and NBC and any applicable permits required for work associated with changes to the drainage systems.

The DB Entity will be responsible for obtaining any applicable permits and providing temporary erosion and sediment control in accordance with RIDOT Standards and the requirements of Rhode Island Pollutant Discharge Elimination System ("RIPDES") Program General Permit for Stormwater Discharges associated with Construction Activity.

3.15.2. **Stormwater Management Plan**

The DB Entity shall prepare a Stormwater Management Plan (SWMP) in accordance with the Rhode Island Pollutant Discharge Elimination System General Permit for Storm Water Discharge Associated with Construction Activity, September 26, 2013 (or latest revised and approved edition). RIDOT has developed a SWMP template to be used by the DB Entity in developing the SWMP. The DB Entity is required to develop and sign the SWMP as the Operator; RIDOT is the Owner.

Before any earth-moving work on the project begins, the DB Entity shall prepare for approval, their own means and methods for construction of stormwater management/erosion and sediment control plan, based on the “Rhode Island Soil Erosion and Sediment Control Handbook” (Revised 2014) and in accordance with RIDOT Standards.

The DB Entity shall be responsible for performing all inspections and amendments; satisfying all reporting requirements in compliance with the General Permit and RIPDES Regulations. The DB Entity shall provide to RIDOT the name and contact information, as well the qualifications, of the individual responsible for completing the required SWMP inspections and reporting requirements.

The DB Entity shall be responsible for compliance with construction-related permit conditions and shall assume all obligations and costs incurred by complying with the terms and conditions of the SWMP. Any fines associated with permit or regulatory violations shall be the responsibility of the DB Entity.

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3.16. **Lighting and Electrical**

3.16.1. **General**

This Section contains information regarding the design and construction of lighting and electrical components.

3.16.2. Design Criteria

3.16.2.1. Rhode Island Department of Transportation Lighting Facilities:

The State lighting and electrical system shall be designed and installed in compliance with RIDOT Standard Specifications and Standards, the National Electrical Code, and the requirements and details in the Technical Provisions.

All new lighting specified shall be LED and meet the current State requirements. New RIDOT highway lighting circuits straight two-phase 240V (run in pairs of 2 black (phase), 2 red (phase), and 2 white/gray (neutral)). Wireless smart lighting control technology from CIMCON, being implemented State-wide, shall also be implemented in this project.

3.16.3. Existing Conditions

There is existing lighting circuitry throughout the Project area and fed from outdoor lighting control cabinets and from electrical vaults in the east abutment near Valley Street. The lighting circuits are energized from dusk until dawn and de-energized during daylight hours.

There are existing light standards on Route I-195, mounted over the roadway on both the median side and the north fascia side. There are also existing light standards on the Gano Street off-ramp and along the Taunton Avenue on-ramp. Electrical conduits run in the bridge barriers to fee these lights.

Under-bridge luminaires are mounted to the bridge deck over Gano Street, Water Street, Waterfront Drive, and Valley Street. Electricity is fixed to the under-bridge luminaires from the two-phase highway lighting circuits in the area of the Project.

3.16.4. Proposed Conditions

All existing highway luminaires have been upgraded to LED, meeting the current State requirements. The existing highway lighting shall be removed and reset, as needed, to construct the Project according to the final approved Plans. Any light standards and/or luminaires damaged by the DB Entity during construction shall be replaced, at no cost to the State.

New overhead highway lighting is required on the new Gano Street on-ramp, along the new Waterfront Drive off-ramp and at the intersection of Waterfront Drive and the new Waterfront Drive off-ramp from I-195 westbound. Additionally, new under-bridge lighting is required under the Waterfront Drive off-ramp bridge. The DB Entity shall be responsible for the design and construction of all new lighting and electrical systems in compliance with RIDOT Standard Specifications and Standards, the National Electrical Code. The DB Entity shall be responsible for all calculations required to determine the appropriate number, spacing, mounting height, etc. of the lighting for the above-mentioned locations.

3.16.5. Materials

The following materials shall be used for the lighting and electrical design and construction.

3.16.5.1. Light Standards

All light standards shall be installed new and shall conform to the requirements of T02.- Highway Lighting of the RIDOT Standard Specifications for Road and Bridge Design and Section T.08 – Aluminum Light Standards and Foundations. Light standards installed on concrete foundations shall have a breakaway transformer base. Light standards installed on a bridge parapet or retaining wall anchorages shall have a shoe base. Light standards shall be designed in accordance with the 2013 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. The light standard shall be providing a 40' luminaire mounting height over the roadway surface. Ramps shall utilize a 30' luminaire mounting height over the roadway surface.

3.16.5.2. Luminaires

All luminaire shall be installed new and shall conform to the requirements of T.07 Luminaires. The luminaires shall be "cobra head"-type, 260 Watt LEDS on 40' poles, and 133 Watt LEDS on 30' poles. The luminaire shall have a seven-pin receptacle fit with a CIMCON Lighting wireless controller and shall operate at two-hundred and forty (240) volts and shall meet all RIDOT Standards.

The under-bridge luminaires shall be wall-mounted type, 220-watt LEDs, 240-volt, and shall meet all RIDOT Standards.

3.16.5.3. Foundations

The light standard foundations shall be installed new and conform to the requirements of Section T.08 – Aluminum Light Standards and Foundations.

3.16.5.4. Conductors

Conductors shall be installed new and conform to the requirements of Section T.04 – Wire and Cable.

3.16.5.5. Conduit

Conduit shall be installed new and conform to the requirements of Section T.06 – Conduit.

3.16.5.6. Handhole and Pull Boxes

Handholes and pull boxes shall conform to the requirements of Section T.05 – Handholes and Pull Boxes.

3.16.5.7. Temporary Lighting

Materials for temporary lighting shall include breakaway fiberglass poles, roadway luminaries, and pre-assembled aerial cable. The pole shaft shall be constructed of a fiberglass-reinforced composite. The pole shall be non-conductive and chemically inert and shall be approved by FHWA for use on Federal Aid projects. For direct buried break-away poles, the butt end shall be enlarged so as to provide resistance to rotation and pull-out. For foundation/structure-mounted poles, the pole shaft shall be equipped with an anchor base of heavy-duty A356-T6 aluminum which shall be permanently bonded to the outside of the fiberglass shaft.

3.16.6. **Methods**

The lighting and electrical system shall be installed in compliance with RIDOT Standards and Specifications, the National Electrical Code, and the requirements as set forth in the Technical Provisions and details.

The DB Entity shall abide by the State's lockout/tagout procedures when access to a circuit is required.

Prior to trenching and excavation, the DB Entity shall contact "Dig Safe" and the State's Electrical Maintenance to ensure that all existing underground facilities are properly marked out prior to commencing any excavation.

All existing light standards shall be removed and reset as necessary to construct the Project. Each parapet-mounted anchorage shall have a corresponding cast-iron junction box (CIJB) cast into the parapet wall. The CIJB shall serve as a splice point for the lighting circuitry and shall house the breakaway fuse kits. An RMC stub-up shall run from the CIJB to the light standard anchorage.

Where appropriate, a light standard may be foundation-mounted behind guide rail or behind a concrete roadway barrier wall. For light standards mounted behind railing, the foundation shall be mounted twenty-four inches (24") behind the railing in the shelf area directly behind the railing and above the down-slope. Light standards may be mounted directly behind a barrier wall, provided that the top of the finished grade behind the wall is within forty-two inches (42") of the top of the wall.

Rigid metal conduit (RMC) shall be run between splice points (light standard bases, junction boxes, and handholes). Conduit shall be run in such a manner as to minimize conduit bends. Under no circumstances shall the cumulative total of conduit bends between splice points exceed three hundred and sixty degrees (360°). RMC may be installed using the following methods: cast into concrete parapet walls, surface-mounted to the back face of a parapet or underside of a bridge deck or installed in the fill area behind guide rail or a barrier wall. For conduit in structure and surface-mounted conduit, expansion fittings shall be installed in the conduit at all locations subject to expansion or movement. Conduit in trench shall be installed at a depth of twenty-four inches (24").

Two-phase lighting circuit conductors shall consist of three (2) #2 AWG conductors (2 black (phase), 2 red (phase), and 2 white/gray (neutral)) and one (1) #6 AWG insulated (green) copper grounding conductor.

All non-LED, damaged, defective, or inoperable under bridge luminaires shall be removed and replaced. Where necessary due to construction or conditions, existing surface-mounted RMC and branch circuit conductors shall be replaced with new ones.

3.16.7. **Standards**

State Lighting Standards: All lighting shall conform to RIDOT standards including but not limited to the following standards:

a. 18.1.0 6/08 R1 Concrete Light Standard Base
b. 18.1.1 6/08 Breakaway Support Couplings for Light Standards
c. 18.2.0 11/13 R3 Precast Type "A" Handhole
d. 18.2.1 5/11 R3 Precast Type "H" Heavy-Duty Handhole
e. 18.2.2 5/11 R3 Precast Type "B" Heavy-Duty Handhole

f. 18.3.0 6/08 R1 Aluminum Lighting Standards
g. 18.3.1 6/08 R1 Aluminum Pole – Grounding Detail
h. 18.3.2 6/08 R1 Typical Luminaire – Wiring Diagram
i. 18.3.3 No Standard Assigned
j. 18.3.4 6/98 Breakaway Support Couplings for Light Standards
k. 18.3.5 6/08 R1 Recessed Bolt Couplings for Light Standards
l. 18.3.6 6/08 Typical Wiring Diagrams
m. 18.3.7 6/08 Underpass Lighting Detail
n. 18.4.0 6/08 R1 Service Pedestal
o. 18.4.1 6/08 R1 Service Pedestal – Grounding Detail
p. 18.4.2 6/08 R1 Service Pedestal 240/480 Volts – 3W
q. 18.4.3 6/08 R1 Service Pedestal 240/480 Volts – 3W
r. 18.4.4 6/08 R1 Service Pedestal 120/240 or 120/208 Volts – 3W
s. 18.4.5 6/08 R1 Service Pedestal 120/240 or 120/208 Volts – 3W
t. 18.4.6 6/08 Service Pedestal Foundation
u. 18.5.0 6/98 Phase-Neutral Connector Kit
v. 18.6.0 6/08 R1 Trench Detail for Conduit in Existing Roadway
w. 18.6.1 6/08 Light Conduit – Road/Ramp Crossing
x. 18.6.2 6/08 Expansion Joints
y. 18.6.3 6/08 Pullboxes – Type “V” and Type “W”
z. 18.7.0 6/08 R1 Riser Pole Detail

3.16.8. **Temporary Illumination**

It is the DB Entity’s responsibility to maintain the integrity of the highway lighting circuits through the Project limits. The DB Entity shall organize its work so that any portion of the roadway that has existing illumination and is open for use remains equally lighted. The DB Entity shall also provide illumination on all temporary crossovers, ramps and roadways constructed as part of the stage construction, that are open for use. The lighting may consist of existing lighting, new lighting or temporary lighting (or any combination of the above). It is the DB Entity’s responsibility to stage the installation of new lighting so that all roadways with existing illumination that are open for traffic remain lighted. If it is necessary to install temporary poles, lights, or circuitry, the proposed installation work shall be submitted for approval to the State prior to the installation. Temporary lighting, where installed, shall be spaced so as to maintain existing luminance and uniformity levels. Under no circumstances shall proper nighttime operation of the lighting system on active roadways be disrupted by construction activities. The State shall comply with RIDOT Standards and Specifications, with the following additions:

Prior to the start of any work that will interfere with the existing lighting system, the DB Entity, along with the State Electrical Maintenance, shall inspect the system for lighting outages, pole knockdowns, and circuit malfunctions. If discovered, these deficiencies shall be noted and repaired by the State prior to the start of said work by the DB Entity.

Once the DB Entity’s work interferes with or detrimentally affects the existing roadway lighting system, maintenance of that system on the Site becomes the DB Entity’s responsibility. The repair of any lighting system malfunctions occurring outside of the Site, caused by the DB

Entity's work, shall also be the DB Entity's responsibility. The State's Construction personnel will note the start and end date of the DB Entity's responsibility for maintenance of the existing lighting system. The DB Entity shall maintain the illumination throughout the duration of the Project, until accepted by the State. The DB Entity shall supply to the State and to the State's Electrical Maintenance Supervisor the names and telephone numbers of a primary and back-up DB Entity's representative, to be contacted should a problem with the lighting system occur.

Initial notification of lighting outages or pole knockdowns on the Site shall immediately be given to the State's Highway Operations Division, who would then notify the State's Electrical Maintenance of the problem. The State's Highway Operations can be reached at the following telephone numbers: (401)- 826-0573. The following procedures will be followed for lighting outages:

a. Once notified of a lighting outage, the State's Electrical Maintenance personnel will assess the situation, and in the case of a pole knockdown, may clear the pole from the roadway and make safe any exposed wires.

b. Upon assessment of the lighting outage, the State's Electrical Maintenance will notify the Project Inspector and the DB Entity's designated representative of the outage, thereby transferring responsibility for any further repairs to the DB Entity.

c. Upon notification of the problem, The DB Entity shall be responsible to repair the lighting system before the normal nighttime turn-on of the lights. If this cannot be achieved, the DB Entity shall make the lighting operational prior to the next normal nighttime turn-on of the lights, up to a maximum of twenty-four (24) hours from the time that the DB Entity was notified of the problem. The DB Entity shall contact the Construction field office and apprise the Project Inspector of the situation and brief them on what steps will be taken to bring the lighting back online, along with an anticipated time frame for doing this.

d. For isolated individual luminaire outages (not a continuous circuit), the DB Entity shall repair such luminaires within forty-eight (48) hours of its notification of the problem.

The DB Entity shall follow standard "lock-out", "tag-out", and "Dig Safe" procedures when working on the lighting circuit. Both the DB Entity and the State's Electrical Maintenance shall have access to active lighting control cabinets.

The DB Entity shall be reimbursed for any costs associated with the maintenance of the existing lighting system that are generated by factors beyond its control. Such reimbursements would, for instance, cover damage caused by the general public or by normal system aging related to component failures (lamp burn-out, ballast/starter failure, cable splice failure, etc.). The DB Entity shall be responsible, however, for repair of damage to the existing lighting system incurred as the result of the DB Entity's operations, such as damage caused by improper wiring methods. All repairs or replacements necessitated by the DB Entity's operations shall be made by the DB Entity at its expense.

Temporary illumination circuitry may consist of pre-assembled aerial cable. If aerial cable cannot be installed due to specific construction activities (driving of piles, placing of bridge girders, etc.), the DB Entity shall notify the State and suggest alternative methods of installation. Alternative options may include installing cable in duct underground or installing surface-mounted cable in duct or PVC conduit, with cable along the backside of a bridge parapet or temporary concrete barrier curbing. Temporary cable in duct or conduit lying directly on the ground will not be allowed. The option of surface-mounting duct or conduit to the backside of

a parapet or barrier will only be allowed when construction activities make it necessary and where the surface-mounted conduit will not expose workers to a high-voltage hazard. The State's approval will be required prior to the installation of any temporary circuitry not installed overhead.

When temporary circuitry is installed in trench, the DB Entity shall follow the standard warning-tape procedures. When temporary circuitry is surface-mounted to the backside of a parapet or barrier wall, the DB Entity shall install warning placards reading: "Live Electricity." Warning placards shall be installed at the beginning, end, and at intermittent points 100' apart along the exposed length, of the duct or conduit. All temporary lighting circuits shall include a continuous No. 6 bare-copper grounding conductor connected to all light standards and effectively grounded as per the NEC.

3.16.9. **Potential Alternatives**

Not Applicable

3.16.10. **Disallowed Alternatives**

No alternatives to the materials listed above will be accepted.

3.17. **Intelligent Transportation Incident Management System (ITS)**

There are existing ITS elements within the project area that will be utilized for traffic surveillance and traffic information dissemination, assisting RIDOT with their Traffic Management efforts. It shall be the responsibility of the DB Entity to ensure that all existing ITS elements remain operational throughout the duration of the Project, unless otherwise approved by the State and the Traffic Management Center (TMC).

3.17.1. **Existing ITS Devices**

RIDOT currently operates several ITS devices throughout the project area. These devices are used on a daily basis and shall remain operational throughout the duration of the project. In the event the existing device operation becomes non-operational through cause of construction activity; the device shall be repaired and/or replaced by the DB Entity within 48 hours. RIDOT employees or their agent shall be provided physical access to the devices in the field when needed for repairs. The DB Entity is required to notify the RIDOT Traffic Management Center (TMC) at least 10 business days in advance for all planned outages. In all cases, outages are to be rectified within 48 hours. RIDOT reserves the right to limit or deny any planned outages of ITS devices. Temporary relocation of field devices may be permitted with prior approval from the TMC. A plan showing the temporary location with power and electrical connections is required for approval. Permanent relocation of the Washington Bridge camera, weather station, and associated cabinetry is required in order to construct the new off-ramp to Waterfront Drive.

3.17.2. **Device Communication**

The CCVEs located throughout the Project area communicate with the TMC via 72-strand fiber optic cabling. All communications shall be maintained throughout the duration of construction unless otherwise approved by the TMC.

3.17.3. **Maintenance of Communications**

This item shall consist of maintaining the existing fiber optic communication system throughout the Project area. If relocation is required, either temporarily or permanently, the Contractor shall coordinate all fiber optic cable relocation activities with the resident engineer and the RIDOT TMC a minimum of 10 business days in advance of any activities that will impact the fiber optic communications. The Contractor shall have the fiber optic communications system up and operational within 8 hours of taking the system offline. The Contractor shall have sufficient crew available to back pull and reinstall the existing cable and complete the required fiber optic splicing required within this timeframe.

Throughout the design and construction of the new fiber optic network, the contractor shall coordinate with the proposed toll zone gantry project team and RIDOT to prevent any construction issues, conflicts, delays, and down time of the fiber optic network.

A splice plan shall be provided by the DB Entity and approved by the TMC staff prior to the installation of any fiber optic cable.

A test plan shall be provided by the DB Entity for approval by the TMC staff. The testing shall include end to end power readings and Optical Time Domain Reflectometer (OTDR) traces performed by a certified fiber optic technician. Proof of certification shall be submitted prior to any testing. Power meters and OTDR's used for the testing are to be calibrated within six months of the testing. OTDR traces are to be provided in electronic format for review and approval by the TMC. If the power readings or OTDR traces show events or losses exceeding the manufacturer's expected losses, the cable is to be replaced at no cost to RIDOT.

3.17.4. TMC Device and System Coordination

The DB Entity shall coordinate will the TMC during all phases of fiber optic cable installation and revisions to existing ITS equipment sites. The DB Entity shall not disconnect any fiber optic cable or ITS equipment at any time without approval from the TMC. The fiber optic network shall not be down for more than 8-hours at a time.

The DB Entity shall provide a system integrator to complete communication integration for all existing field devices at the TMC and to ensure complete working subsystems. The DB Entity shall supply vendor support to the integrator to ensure complete working systems. The integrator shall work with the TMC staff for network addressing assignments. Prior to installation the DB Entity shall submit detailed fiber optic network drawings for approval by the TMC staff. Fiber assignment drawings showing detailed splicing information is to be provided by the integrator. The integrator is also responsible to develop a transition plan for the conversion of existing device communication to the new fiber network. At the completion of the project, the DB Entity shall provide 40- scale as-built plans and drawings of the ITS equipment and fiber optic communication systems and devices installed under this project.

3.18. Landscape Design

3.18.1. General

The project will require landscape design to provide enhancement and improvements to the project area near the Gano St ramps and the existing shared use path. The landscape plantings are to be sustainable and durable to the urban/highway environment, while being easy to maintain for the Owner. The inclusion of simple and large-scale landscape plantings helps to create a more pleasurable experience for users of the transportation network. Environmental purposes such as erosion control and storm water pollution prevention are to be considered.

The general criteria for landscaping features are as follows:

a. Use of greenscape surfaces, natural materials, and local plantings where feasible
b. Sunlight and rainwater need to reach the vegetation
c. Landscape features shown outside the state right-of-way are not included in the project.
d. The design of all features shall meet the criteria specified in the AASHTO Roadside Design Guide. They should either be placed outside the clear zone of the roadway or protected from vehicle impacts.

3.19. Environmental Compliance

3.19.1. General

The DB Entity is responsible for developing plans and specifications in full conformance with the State's Best Management Practices (BMPs), existing Project environmental permits and approvals, and all applicable environmental laws and regulations.

3.19.2. Compliance with Laws and Regulations

The DB Entity shall conduct its operations in conformance with the permit requirements established by federal, State and municipal laws and regulations.

The DB Entity shall conduct its operations in compliance with federal and State permit requirements concerning soil, water, air and noise pollution, and the disposal of controlled or hazardous materials. Said permit requirements include, but are not limited to, those established by Federal Regulations administered by the United States Coast Guard, Army Corps of Engineers, or the Environmental Protection Agency (EPA).

Appropriate permits shall be required for all activities associated with or incidental to the DB Entity's operations, including, but not limited to, those regarding the Site or adjacent areas, waste and disposal areas, borrow and gravel banks, storage areas, haul roads, access roads, detours, field offices, or any other temporary staging areas.

The DB Entity shall be responsible for, and hold the State harmless from, any penalties or fines assessed by any authority due to the DB Entity's failure to comply with any term of an applicable permit.

The State has gained initial determinations for the need for certain permits related to the BTC. The responsibility for obtaining environmental permits for Contract work is explained in Part 2, Section 4 of this RFP.

Any request by the DB Entity for authorization of activities or methods not specifically called for or allowed by the applicable permits issued for the Project shall be submitted by the DB Entity in writing to the State. Such a request shall include a detailed description of the proposed activities or methods, and shall include justifications for same, along with supporting documentation, showing that the proposed activity or method will not create a risk of damage to the environment. If such request is granted by the State, the State will process an application prepared by the DB Entity to the appropriate regulatory agency or agencies for any permit amendment, modification, revision or new permit required for the DB Entity to carry out the changed activities or use the methods in question. The State does not, however, guarantee that it will be able to obtain the desired permit amendment, modification or revision; and the State will not be liable for the effects of any inability to do so.

The DB Entity will not be entitled to any extension of Contract time as a result of the State's granting of such a request from the DB Entity. If the amendment, modification, or revision of the permit is not necessary except to make possible the changes requested by the DB Entity, then no claim may be made by the DB Entity based on the amount of time taken by the State to review the DB Entity's request, or to apply for or secure the permit amendment, modification or revision. No such proposed additional activity shall commence, nor shall such a changed method be used, until and unless the State approves in writing the DB Entity's request.

In case of a failure by the DB Entity to perform pollution control work as required by the State, the State may, after having given the DB Entity twenty-four (24) hours advance written notice of its intention to do so, arrange for said work to be performed by other forces, and will deduct the cost from any monies due or that may become due to the DB Entity under the Contract or under any other State contract.

3.19.3. **Water Pollution Control**

The DB Entity shall, throughout the duration of the Contract, control and abate siltation, sedimentation and pollution of all waters, including but not limited to under-ground water systems, inland wetlands, tidal wetlands, and coastal or navigable waters.

Construction methods proposed by the DB Entity shall comply with the approved permit requirements and permit applications. The DB Entity shall be responsible for all obligations and costs incurred as a result of the DB Entity’s failure to comply with the terms and conditions of such permits or permit applications.

The following are Required Best Management Practices for prevention and control of water pollution. The DB Entity shall not make any design change in the Contract work that requires a variance from the requirements of the following items until and unless the DB Entity has first submitted a detailed written proposal for such variance to the State for review and for transmittal to and review by the federal, State or municipal environmental authority, and has then received written approval from the State of the proposed variance.

REQUIRED BEST MANAGEMENT PRACTICES

a. Prior to commencing Project Site work, the DB Entity shall submit in writing to the State a “Soil Erosion and Sedimentation Control Plan” and a “Dust Control Plan” for all Project construction stages. The DB Entity shall install all control measures specified in said Plans prior to commencement of Project construction activities. The Plans shall be consistent with the Rhode Island Soil Erosion and Sediment Control Handbook, and all environmental laws and regulations established by federal, State or municipal agencies, as well as the State's published environmental policies and standards. If the DB Entity elects to work during a winter shut-down period, the DB Entity shall submit to the State a separate Winter Erosion and Sedimentation Control Plan, obtain the State’s written approval and implement it before the Contractor begins Project work during the winter shut-down period.

b. The DB Entity shall inspect erosion and sedimentation controls at least weekly, immediately after each rainfall event of at least 0.25 inches in 24 hours, and daily during periods of prolonged rainfall. The DB Entity shall maintain all erosion and sedimentation control devices in a functional condition, in accordance with the Contract plans, relevant permits and Special Provisions. In the event that the DB Entity fails to maintain such devices in accordance with said documents, and the DB Entity does not correct such a failure within 24 hours after receipt of written notice of such a failure

from the State, the State may proceed with its own or other forces to remedy such failures. The cost to the State of curing any such specified failure will be deducted from monies owed to the DB Entity under the Contract or under any other State contract.

c. Washout of applicators, containers, vehicles, and equipment that have been used with concrete (including bituminous concrete), paint or other such possible contaminants shall be conducted:(i) at least 50 ft from any stream, wetland or other sensitive resource; and (ii) in an entirely self-contained washout system. Such materials shall be collected and disposed of in accordance with all applicable federal, State and municipal laws and regulations.

d. No materials resulting from Project construction activities shall be placed in or allowed to contribute to the degradation of a wetland, watercourse or storm drainage system. Good housekeeping of the Site by the DB Entity for the purpose of preventing construction-related debris or runoff from entering a regulated area is required. The DB Entity shall not leave waste or debris within the travel way or roadside where it might create a safety hazard to the traveling public. The DB Entity shall dispose of all construction-related materials in accordance with federal, State and municipal laws and regulations.

e. The DB Entity shall not withdraw water from any watercourse system, except as allowed by applicable permits.

f. The DB Entity shall not dispose of any material until and unless it has proposed a location for its disposal to the State and the State has approved said location in writing. If the proposed disposal location is on private property, the DB Entity shall include in the disposal location proposal to the State letters from the property owner and the affected municipality, agreeing to the proposed location for disposal. The DB Entity shall ensure that proposed disposal locations are outside of wetlands or watercourses, floodplains and water or natural resource areas.

g. Before commencing any work in or adjacent to a regulated area shown on the plans, permit(s), or identified by the State or their representatives, the DB Entity shall submit in writing to the State a construction-sequencing plan, a water-handling plan, and a flood contingency plan, and obtain from the State written approval of said plans.

h. When dewatering is necessary, the DB Entity shall not allow pumps used for same to discharge directly into a wetland or watercourse. Prior to any dewatering, the DB Entity shall submit to the State a written proposal for specific methods and devices to be used for same, and shall obtain the State's written approval of such methods and devices, including, but not limited to, the pumping of water into a temporary sedimentation basin, providing surge protection at the inlet or outlet of pumps, floating the intake of a pump, or any other method for minimizing or retaining the suspended solids. If the State determines that a pumping operation is causing turbidity in a regulated area, the DB Entity shall halt said operation until a means of controlling the turbidity is submitted by the DB Entity in writing to the State, approved in writing by the State, and implemented by the DB Entity.

i. When dewatering is necessary, the DB Entity shall not allow pumps used for same to discharge directly into a wetland or watercourse. Prior to any dewatering, the DB Entity shall submit to the State a written proposal for specific methods and devices to be used for same, and shall obtain the State's written approval of such methods and devices,

including, but not limited to, the pumping of water into a temporary sedimentation basin, providing surge protection at the inlet or outlet of pumps, floating the intake of a pump, or any other method for minimizing or retaining the suspended solids. If the State determines that a pumping operation is causing turbidity in a regulated area, the DB Entity shall halt said operation until a means of controlling the turbidity is submitted by the DB Entity in writing to the State, approved in writing by the State, and implemented by the DB Entity.

j. Upon completion of the associated work, the DB Entity shall immediately clear all areas of all forms, false work, piling, debris or other obstructions created or caused by construction operations.

k. If the DB Entity wants to make a change in construction operations, staging or scheduling that would affect the use of or necessity for any pollution controls, the DB Entity shall submit to the State a written proposal detailing the proposed change, and shall receive the State's approval of such change, before implementing it. Such submission shall include a plan showing what erosion and sedimentation controls above and beyond those called for in the Contract would be necessitated by the proposed change.

l. Dumping of oil, fuel, chemicals or other harmful materials on the ground or into a regulated area is forbidden. The DB Entity shall provide to the State a written Spill Prevention and Remediation Plan for the Project, outlining the DB Entity's intended means of catching, retaining, and properly disposing of drained oil, removed oil filters, fuel, chemicals and other harmful material. Such plan shall also include the information and protocols needed for the remediation of any spill that might occur on the Site, including emergency contact information. No construction activities shall commence until such a plan has been approved in writing by the State.

m. The DB Entity shall restore all areas within or outside the State right-of-way that have been disturbed as a result of construction activities.

3.19.4. Construction Noise and Vibration Pollution

The DB Entity shall take measures to minimize the noise caused by its construction operations, including, but not limited to noise generated by equipment used for drilling, pile-driving, blasting, excavation, or hauling. All methods and devices employed to minimize noise shall be subject to the continuing approval of the State. The maximum allowable level of noise at the residence or occupied building nearest to the Site shall be ninety (90) decibels on the "A" weighted scale (dBA). The DB Entity shall halt any Project operation that violates this standard at any time until the DB Entity develops and implements a methodology that enables it to keep noise from its Project operations below the 90-dBA limit.

The contractor shall utilize a noise curtain and auger the first 25’ when pile driving to minimize noise levels during construction. The contractor shall identify the appropriate noise levels anticipated from his construction operation at the various pile installation locations to allow the Resident Engineer to closely monitor where a noise curtain is required. The contractor shall utilize a high-frequency hammer when driving to limit vibration. The DB Entity shall indemnify and hold harmless the State from any claims related to noise from construction operations that exceeds the maximum allowable levels, or any claims related to the DB Entity’s failure to follow approved noise minimization methods.

3.19.5. Protection of Archaeological and Paleontological Remains and Materials

The DB Entity shall be alert to the possibility that Project operations may disturb or uncover significant archaeological or paleontological resources or other such remains which in many cases are protected by federal laws, State laws or both. Archaeological resources are minimally defined by federal regulations as materials 50 years of age or older. They typically consist of subsurface concentrations of metal, bone, ceramic, or flaked or other shaped stone artifacts. They might also consist of features such as buried building foundations, linear or circular walls made of individual stones rather than concrete or cement, trash-filled pits, patches of burned earth, or distinct patterns of nearly-circular, elliptical, or squared discolorations in newly-exposed soil, accompanied by the types of artifacts described above.

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust. These typically include fossilized bones, teeth, shells, eggs, or distinct impressions made in bedrock. When archaeological or paleontological materials are inadvertently encountered, the DB Entity shall immediately halt operations in the location of same and shall notify the State of said discovery. The DB Entity shall make every effort to preserve archaeological or paleontological materials intact in their original positions, in order to preserve the geological context and information content of the remains in relation to one another and to the enclosing soil.

The State shall have the authority to suspend Project work in the area of such discovery for the purpose of preserving or recovering and documenting the archaeological or paleontological materials. The DB Entity shall carry out all instructions of the State for the protection of such materials, including steps to protect the site from vandalism, unauthorized investigations, accidental damage, and damage from such causes as heavy rainfall or runoff. The DB Entity shall reschedule its work to minimize any loss of the time needed to complete the Project while the State evaluates, records and salvages the archaeological or paleontological materials.

Extra work ordered by the State in this connection will be paid for in accordance with Part of the RFP. Delays caused by archaeological or paleontological preservation and protection, which the DB Entity demonstrates have delayed completion of the Project, will be treated under the provisions for extension of time.

3.19.6. Controlled and Hazardous Materials

RIDOT has completed Phase I Environmental Site Assessments (ESAs) for the Gano Street and Waterfront Drive proposed construction/demolition activities. As part of the proposed work, it is anticipated that right-of-way acquisitions that include an area of 12,900 +/- square-feet of land at 62-78 Valley Street (Map 1, Lot 01-003) and approximately 20,740 +/- square-feet of land at 160 Valley Street (Map 105, Lot 05-008) may be required. The Project is located in an urban area where residential and commercial development dates back to the 1800s. Contaminated soils have been identified at various locations throughout the Project area. The Washington Bridge is identified as an inactive State Hazardous Waste Site (SHWS) under RIDEM Site Remediation (SR) ID# 28-1386, Route 195 DOT Contract 18 is identified as an active SHWS under SR-28-1858, RIDOT Waterfront Avenue is listed as an inactive SHWS with an AUL under SR-10-1334, and RIDOT Taunton Avenue Bridge 466 is listed as an active SHWS under SR-10-1885. A Covenant Not To Sue/Environmental Land Use Restriction (ELUR) was implemented on the parcel located at 62-78 Valley Street under RIDEM SR ID # 10-0498 in September 1999. In accordance with these documents, any excavation work shall

be approved by the State and managed in accordance with the site-specific Soil Management Plan (SMP), groundwater monitoring wells on this property shall not be disturbed without prior State approval and groundwater shall not be extracted and used for potable purposes.

The DB Entity shall be required to comply with the RIDEM-approved Covenant Not To Sue/ELUR and SMP during construction of the Waterfront Avenue off-ramp.

For the purpose of preparing the proposal, the DB Entity is responsible for reviewing the SHWS listings associated with the Washington Bridge, RIDOT 195 Gano Contract 18, RIDOT Waterfront Avenue and RIDOT Taunton Avenue Bridge 466 sites for additional information as to the presence of contaminated soil and previously prepared remedial action workplans and/or SMPs and the Covenant Not To Sue/ELUR/SMP associated with the 62-78 Valley Street site for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project. To the extent practicable and prudent, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The DB Entity shall refer to any existing RAWPs/SMPs and the Covenant Not To Sue/ELUR/SMP when preparing a written Materials Management Plan that will guide the proper handling, reuse, recycling and/or disposal of known or suspected regulated, hazardous, or controlled materials. The Materials Management Plan will also provide adequate contingencies to address additional contaminated materials that may be encountered throughout the Project. The Materials Management Plan shall not change or remove any requirements in the RIDEM-approved SMP unless written approval of said changes and/or removals are obtained from RIDEM. The DB Entity will submit the Materials Management Plan to the State for review and approval.

The DB Entity is responsible for any additional preliminary testing of soil, groundwater or construction materials needed to satisfy the requirements of its design and construction.

To the extent practicable and prudent based on the results of the previous limited site investigations and any additional environmental testing deemed necessary by the DB Entity, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The DB Entity's Materials Management Plan will clearly describe the procedures and rationale by which off-site disposal of soil will be minimized

The State will acquire any "Hazardous Waste Generator Permit(s)" required under the Resource Conservation and Recovery Act, for the management and disposal of hazardous materials on the Site, provided that:

a. Such material is within the construction limits defined in the Contract.

b. Such material is not comprised of waste materials generated by the DB Entity.

Based on the historical urban development of the Project area, additional soils within the Project Limits may be contaminated. In the event that the DB Entity encounters or exposes any material, not previously known or suspected to be contaminated, but which exhibits properties that may indicate the presence of controlled or hazardous material, the DB Entity shall cease all operations in the material's vicinity and shall immediately notify the State of the material's discovery. The presence of barrels, discolored earth, metal, wood, visible fumes or smoke, abnormal odors or excessively hot earth may indicate the presence of controlled or hazardous material and shall be treated with extreme caution. If controlled or hazardous materials, other

than those required for Contract operations, are discovered at the Site, the State may engage a specialty contractor to handle and dispose of the materials.

When the DB Entity performs support work incidental to the removal, treatment or disposal of controlled or hazardous material, the State will pay for same at the applicable Contract unit prices. When the Contract does not include appropriate pay items for same, payment will be made in accordance with Part 3 of the RFP hereof. The DB Entity shall observe all security precautions established pursuant to 29 CFR 1910.120 and 1926.65, including all revisions and amendments thereof, and shall not work in any area known to contain or suspected of containing controlled or hazardous material without prior written approval from the State to do so. The DB Entity shall assume sole responsibility for the proper storage, handling, management, and disposal of all regulated materials and wastes associated with its operations, including, but not limited to, lubricants, antifreeze, engine fluids, paints, and solvents. All costs associated with any failure by the DB Entity to properly manage such materials in accordance with federal and State regulations, and all remedial and punitive costs incurred by the State as a result of such failure, shall be borne by the DB Entity. This section shall apply to coatings removed by the DB Entity.

3.19.7. **Vehicle Emissions**

All motor vehicles and construction equipment used for the Project (both on-highway and off-road) shall comply with all federal, State and municipal regulations concerning exhaust emission controls or safety. The DB Entity shall establish staging zones for vehicles waiting to load or unload at the Site. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutting properties and the general public. Idling of delivery trucks, dump trucks, and other equipment shall not be permitted for longer than 3 minutes during periods of non-activity, except as allowed by State or municipal regulations. The DB Entity shall conduct all of its Project work in a way that causes no harm to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. The DB Entity shall see to it that any engine exhaust is not directed toward fresh air intakes, air conditioners, or windows. Before performing extensive work within less than 50 ft. of a sensitive receptor, the DB Entity shall:

a. Submit to the State a Vehicle Emissions Mitigation plan, proposing detailed means for minimizing vehicle emissions from vehicles and construction equipment in the affected area, including a proposed sequence of construction;

b. Obtain the State's written approval of the Plan, making any revisions of same necessary to obtain said permission; and

c. Implement the Plan, as it may have been revised.

Any costs associated with this “Vehicle Emissions” Section shall be included in the general cost of the Contract. In addition, there shall be no additional time granted to the DB Entity for compliance with this section. The DB Entity’s compliance with this section and any associated laws or regulations shall not be grounds for claims as outlined in Sections 105.19 and 105.20 of Part 3 of the RFP.

Section 4. Environmental Approvals

4.1. General Statement

It is the responsibility of the DB Entity, in coordination with RIDOT, to obtain all required Environmental Approvals/Clearances to the extent not already obtained by or on behalf of RIDOT as described in Section 4.3. The DB Entity is required to prepare all documentation required for any application for any such Environmental Approval/Clearance or any amendment to any such Environmental Approval/Clearance. The DB Entity is also responsible for the preparation of all documentation required to satisfy any conditions to the DB Entity's scope of work contained in Environmental Approvals/Clearances or amended Environmental Approvals/Clearances prior to the start of work and/or following the completion of work. The DB Entity shall submit the applications to the RIDOT Natural Resources Unit (NRU) and the RIDOT Office of Stormwater Management (OSM) for their review and comment. RIDOT will submit the final permit applications to the relevant regulatory agencies RIDOT takes no responsibility for any time delay or cost associated with submissions that are sent back to the DB Entity by RIDOTs NRU or OSM for modification or correction and resubmittal to RIDOT prior to submittal to the relevant regulatory agencies.

The DB Entity is responsible at all times for complying with: (a) all conditions and schedules in any Environmental Approvals/Clearances, whether obtained by RIDOT or the DB Entity, and (b) all applicable Environmental Laws. Failure to comply with conditions or schedules in Environmental Approvals/Clearances will be grounds for termination hereof.

The DB Entity shall be responsible for any and all costs, liability, penalties, expenses, damages, including economic, property, natural resource and personal injury, or delays resulting from any non-compliance with Environmental Approvals/Clearances.

The DB Entity shall develop a close working relationship with RIDOT and the regulatory agencies to ensure that its designs will be acceptable from an environmental perspective. RIDOT takes no responsibility for any time delay or cost associated with submissions that are refused, rejected, conditioned or modified by RIDOT or any regulatory agency or for any redesigns such agencies or RIDOT may require.

4.2. Environmental Approvals/Clearances to be Obtained by RIDOT

4.2.1. NEPA Compliance/Environmental Documentation

RIDOT is in the process of completing the National Environmental Policy Act (NEPA) review process for this Project, which is currently undergoing review as a Categorical Exclusion (CE) by the FHWA. A CE determination is expected to be issued by FHWA prior to RIDOT issuing a Notice to Proceed to the DB Entity for final design and construction of the project. Design efforts shall not advance to final design (beyond 30%) on this project until NEPA has been completed. Any environmental commitments resulting from the NEPA process will be added to the project via addendum or construction change order.

Any proposed changes to the footprint or scope of the project (as expressed in this RFP) proposed by the DB Entity during development of the Technical Proposal will be reviewed by the State to determine if a change to the NEPA filing by the RIDOT is necessary. If changes are required, the change would be considered an alternative. Such changes may necessitate additional environmental studies or coordination with regulatory agencies to be carried out by the DB Entity. The DB Entity shall carry out any additional environmental commitments as a result of any re-evaluation and will be responsible for any schedule delays and associated costs.

4.2.2. Interchange Justification Report (IJR)

RIDOT is in the process of completing an Interchange Justification Report (IJR) for this Project, which is currently undergoing review by the FHWA. Final approval of the IJR by FHWA is required prior to RIDOT issuing a Notice to Proceed to the DB Entity for final design and construction of the project.

Any proposed changes to the footprint or scope of the project (as expressed in this RFP) proposed by the DB Entity during development of the Technical Proposal will be reviewed by the State to determine if a change to the IJR filing by the RIDOT is necessary. If changes are required, the change would be considered an alternative. Such changes may necessitate additional studies or coordination with FHWA to be carried out by the DB Entity. The DB Entity shall carry out any additional commitments as a result of any re-evaluation and will be responsible for any schedule delays and associated costs. Any design changes that may be necessitated as a result/condition of the IJR approval will be added to the project via addendum or construction change order if necessary.

4.2.3. U.S. Fish and Wildlife Service (USFWS): Endangered Species Act (ESA) Section 7 Consultation.

RIDOT has consulted with USFWS online 4(d) Rule Consistency Key and RIDEM to determine if the Project affects the Northern Long Eared Bat (NLEB). The consultation confirmed the Project is consistent with activities analyzed by the Biological Opinion and will have no effect on the NLEB.

4.2.4. RI Department of Environmental Management Natural Heritage Program:

RIDOT has consulted with RIDEM which has determined that the listed species associated with a Natural Heritage Area identified adjacent to the Project was located beyond Project activities and no further consultation is required.

4.2.5. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS):

ESA Section 7 Consultation and Essential Fish Habitat (EFH) Consultation – both consultations shall qualify for the FHWA-Greater Atlantic Regional Fisheries Office (GARFO) 2018 Not Likely to Adversely Affect (NLAA) Program and the Programmatic EFH Consultation for Select Transportation Projects in the NMFS Greater Atlantic Region. DB Entity shall prepare the streamlined FHWA-GARFO NLAA forms and related consultation information and secure approval from NOAA NMFS. DB Entity shall recognize that Time of Year (TOY) restrictions for in-water work and acoustic impacts are anticipated to be imposed by NOAA NMFS. TOY restrictions are anticipated to extend from February 1-June 30 for in-water work and acoustic impacts, and construction noise for activities such as pile driving are anticipated to require best management practices such as “soft starts” to avoid impacts. NMFS defines “soft starts” as:

If pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold, a “soft start” is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. *In addition to using a soft start at the beginning of the workday for pile driving, one shall also be used at any time following cessation of pile driving for a period of 30 minutes or longer.*

For impact pile driving: pile driving shall commence with an initial set of three strikes by the hammer at 40% energy, followed by a one minute wait period, then two subsequent three-strike

sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.

For vibratory pile installation: pile driving shall be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period shall be repeated two additional times, followed immediately by pile-driving at full rate and energy.

4.3. **Construction Related Permits and Environmental Approvals/Clearances to be Obtained by the Design Build Entity**

The DB Entity will be responsible for obtaining all construction-related permits and approvals. The DB Entity shall be responsible for the preparation of all permit applications and supporting documentation, based on the DB Entity's final design. The RIDOT as owner, will be the Permittee. Upon RIDOT review and approval of the necessary permit applications, RIDOT will submit them to the regulatory agencies. Should the DB Entity propose design changes acceptable to the RIDOT, then permitting requirements may also change. The DB Entity also remains responsible for obtaining any and all necessary amended permits required by the regulatory agencies.

The DB Entity shall be responsible for compliance with pre-construction, construction-related permit conditions, as well as post-construction monitoring if required by regulatory agencies.

All efforts and costs necessary for additional permit acquisition or modification, compensation or mitigation costs shall be included in the DB Entity's Price Proposal. Any fines associated with environmental permit or regulatory violations/enforcement actions shall be the responsibility of the DB Entity. The project will not be deemed complete or acceptable if there are outstanding regulatory violations/enforcement actions.

Based on the proposed work, the following permits are anticipated:

- US Army Corps of Engineers (USACE): Section 404 General Permit 8 (Self Verification or Preconstruction Notification). The Project will include discharges of dredged or fill material to the Seekonk River incidental to bridge construction and as such the Project will require Section 404 authorization by the USACE under General Permits 8 of the Rhode Island General Permit. Authorization under the General Permit will not be valid until the CRMC Category B Assent is granted. The USACE may exercise jurisdiction under Section 10 of the Rivers and Harbors Act (RHA) of 1899 because the Project will require excavation or fill within navigable waters. Section 10 authorization would be granted as part of the Section 404 review and authorization process. In addition, the USACE Navigation Section has indicated that there is a 16-foot deep by 150-foot wide Federal Navigation Project (FNP) that extends through the Project from Providence Harbor north to the Henderson Bridge, and therefore the work may require approval under the RHA Section 408 process to alter a USACE civil works project area.

- U.S. Coast Guard (USCG): Authorization for Maintenance: Pursuant to Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946. Projects

that propose to construct, reconstruct or modify a bridge or causeway across navigable waters of the United States are required to obtain USCG approval prior to commencing construction or modification work. In 2016, the USCG authorized the Phase I rehabilitation work for the Washington Bridge over the Seekonk River, a navigable waterway. Based on a RIDOT-requested review of the proposed scope of work for the I-195 Washington Bridge North Phase 2 project, the USCG has determined that the current Phase 2 scope of work is not covered by the prior authorization dated October 12, 2016 . Therefore the DB Entity is responsible for acquiring authorization from the USCG for work under this Phase 2 project. The DB Entity is further required to prepare the USCG Bridge Work Notification form and provide it to RIDOT 100 days before the start of work subject to USCG jurisdiction.

- RIDEM Office of Waste Management – Soil Contamination

- RIDEM Office of Water Resources – Rhode Island Pollution Discharge Elimination System General Permit for Construction Activity and Water Quality Certification (WQC). WQC will include consultation with RIDEM Division of Fish and Wildlife to determine if minimization or mitigation measures are recommended to protect aquatic life.

- Coastal Resources Management Council (CRMC): Application for Category B Assent

- Narragansett Bay Commission – Stormwater/Sewer Alterations

- City of Providence – Department of Public Works

- City of East Providence –Department of Public Works

Construction of the BTC may require that any or all of the above-listed approvals be acquired by the DB Entity for the project, in addition to others that are not identified in this document.

4.3.1. **RIPDES Construction General Permit**

The area of anticipated ground disturbance for the Project using the BTC will exceed the 1-acre threshold requiring registration under the Rhode Island Pollution Discharge Elimination System (RIPDES) Construction General Permit. Based on the ground disturbance required by the Project, it is anticipated that dewatering will occur requiring a registration under the RIPDES Construction General Permit. Dewatering of any contaminated water requires a RIPDES Remediation Discharge Permit. Only uncontaminated water can be discharged under the RIPDES General Permit. Given the site location, any dewatering along the banks of the river should be considered contaminated. The DB Entity will be responsible for obtaining the appropriate approvals under the RIDEM RIPDES program as required.

4.3.2. **Coastal Resources Management Council Assent**

The coastal waterway (Seekonk River), any associated wetland resource areas including, the 200-foot Contiguous Area, Area Subject to Storm Flowage (ASSF), the 100-year floodplain (Area Subject to Flooding-ASF), and 200-foot Riverbank that extends from these resources in the Project Area are subject to the jurisdiction of the Rhode Island Coastal Resources Management Council (CRMC). The Washington Bridge crosses the Seekonk River, which is classified as a Type 4 (Multipurpose Waters) and a Type 6 (Industrial Waterfronts and Commercial Navigation Channels) waterbody in the RI Coastal Resources Management Plan. Much of the proposed highway improvements are within the 200-foot Contiguous Area. This area is also within the CRMC Metro Bay Special Area Management Plan (SAMP). The State has verified with the CRMC that a Category B Assent is required for this Project. The State has not acquired this approval. A pre-application conference with CRMC is recommended.

4.3.3. **Rhode Island Department of Environmental Management & U.S. Army Corps of Engineers**

Based on the proposed project, the following permits and authorizations are required from RIDEM and USACE: authorization from the USACE under the General Permit for the State of Rhode Island (Effective Date March 3, 2017), Water Quality Certification (WQC) from the RIDEM, Authorization under the Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity from the RIDEM; inclusive of preparing and complying with the requirements of a site specific Soil Erosion and Sediment Control Plan (SESCP) and Long-term Operation and Maintenance Plan for Stormwater Treatment Units (STUs). It is recommended that the USACE also be involved in a pre-application meeting to ensure that the project will comply with all the conditions of the applicable General Permits for Rhode Island.

The DB Entity shall utilize the February 2019 RIDOT Linear Stormwater Manual in a manner consistent with the RI Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) for the design of the stormwater management systems. Treatment in the Seekonk River watersheds is required and treatment goals for the watershed should be coordinated with the RIDOT Office of Stormwater Management (OSM). The DB Entity is responsible for reviewing and understanding the performance standards and commitments made in all permits and approvals for the Project, as well as the standards and prohibitions of the respective regulations of these programs. Linear Stormwater Manual Standards. The DB Entity shall also address stormwater runoff from areas within the project limits.

The DB Entity shall use the February 2019 RIDOT Linear Stormwater Manual (LSM) in a manner consistent with the RI Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) in the design of this project. The DB Entity shall prepare and submit to RIDOT OSM as soon as practicable prior to the 30% Design, a Preliminary Environmental Design Submission for their review that consists of the following:

a. LSM Appendix A Stormwater Management Plan Checklist Part 1 and 2 (as complete as possible at this design stage).

b. LSM MEP Worksheet; and

c. LSM Worksheet A: Treatment Provided by STUs.

The purpose of this preliminary submission is to assist in streamlining the environmental permitting process for this project. This preliminary submission will allow for early coordination between the DB Entity and the RIDOT OSM. This submission will also allow for a preliminary meeting with the RIDEM and CRMC Permitting Staff. Early coordination between the DB Entity and the RIDOT OSM

is encouraged and meetings may be coordinated with the OSM prior to this submission. A meeting between the DB Entity and the RIDOT OSM is required upon the submission of the Preliminary Environmental Design submission. A preliminary design strategy for environmental permitting (i.e. anticipated permit submissions based on the DB Entity's design concept) should also be submitted.

4.4. Acquired Environmental Approvals

In the BTC, the State has called for certain design, construction, and mitigation measures to be taken for this Project. The State has already taken some steps to clear the way for said measures, including meetings with certain agencies to discuss the Project.

Requirements for environmental compliance by the DB Entity are outlined in Section 3.19 of Part 2 of this RFP.

Any changes or revisions of the conditions of the Project by the DB Entity through its final design or through the submission and approval of an ATC shall make it necessary for the DB Entity to provide all documentation required for any application for any such environmental approval or any amendment of any such environmental approval. This would include the potential need for a Categorical Exclusion Reevaluation as a result of revisions to the design of the BTC, to be approved by FHWA in compliance with NEPA. Any such changes of Project conditions shall be coordinated through the State, since the State is the official applicant for such approvals. The DB Entity will be responsible for all work required for any need to revisit the environmental reevaluation made necessary as a result of their final design.

The DB Entity is encouraged to develop a close working relationship with the State for the purpose of ensuring that its designs will be acceptable to the State and to regulatory agencies from an environmental perspective. The State takes no responsibility for any time delay or cost associated with related submissions that are refused, rejected, conditioned or modified by the State or any regulatory agency, or for any redesigns that such agencies or the State require from the DB Entity.

4.5. Stormwater Pollution Control Plan

The DB Entity will be responsible for developing a Stormwater Pollution Control Plan that includes the required stormwater treatment measures during construction and post-construction for the DB Entity's construction means and methods as well as the final stormwater design. The DB Entity will be responsible for supplying the State with all the required documentation for obtaining the applicable permits. The State will not allow the DB Entity to revise the Project schedule because of any change to the drainage design or associated permits.

4.6. Subsurface Regulated Materials/ Environmental Compliance

4.6.1. General

Contaminated media (CM) are soil, groundwater, sediment, wastes, and other material encountered during the Project that are regulated by the Rhode Island Department of Environmental Management (RIDEM) or other state, local or federal agency due to the presence of pollutants in the media. The DB Entity is hereby notified that contaminated media, including impacted soil, has been identified in the project area. The DB Entity shall ensure that all work shall comply with applicable and relevant rules and regulations of local, state and federal authorities, and shall protect human health and natural resources.

4.6.2. Limited Environmental Investigations

RIDOT has completed Phase I Environmental Site Assessments (ESAs) for the Gano Street and Waterfront Drive proposed construction/demolition activities. As part of the proposed work, right-

of-way acquisitions including an area of approximately 12,900 +/- square-feet of land at 62-78 Valley Street (Map 1, Lot 01-003) and approximately 20,740 +/- square-feet of land at 160 Valley Street (Map 105, Lot 05-008) may be required. The Project is located in an urban area where residential and commercial development dates back to the 1800s. Contaminated soils have been identified at various locations throughout the Project area. The Washington Bridge is identified as an inactive State Hazardous Waste Site (SHWS) under RIDEM Site Remediation (SR) ID# 28-1386, RIDOT Waterfront Avenue is listed as an inactive SHWS with an AUL under SR-10-1334, and RIDOT Taunton Avenue Bridge 466 is listed as an active SHWS under SR-10-1885, and Route 195 DOT Contract 18 is identified as an active SHWS under SR-28-1858. A Covenant Not To Sue/Environmental Land Use Restriction (ELUR) was implemented on the parcel located at 62-78 Valley Street under RIDEM SR ID # 10-0498 in September 1999. In accordance with these documents, any excavation work shall be approved by the State and managed in accordance with the site-specific Soil Management Plan (SMP), groundwater monitoring wells on this property shall not be disturbed without prior State approval and groundwater shall not be extracted and used for potable purposes.

The DB Entity shall be required to comply with the RIDEM-approved Covenant Not To Sue/ELUR and SMP during construction of the Waterfront Avenue off-ramp.

The DB Entity is responsible for reviewing the SHWS listings associated with the Washington Bridge, RIDOT Rt. 195 Contract 18 Gano Street, RIDOT Waterfront Avenue and RIDOT Taunton Avenue Bridge 466 for additional information as to the presence of contaminated soil and previously prepared remedial action workplans and/or SMPs and the Covenant Not To Sue/ELUR/SMP associated with the 62-78 Valley Street site for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project.

Design-Build Entity’s Optional Environmental Investigation

If the DB Entity desires, it may conduct, with the prior approval of RIDOT, additional investigations, surveys, testing and analyses as necessary to develop and implement suitable plans for timely performance of all environmental avoidance, mitigation and protection measures. Site Investigation Work Plans involving CM and locations subject to the Remediation Regulations are required to be submitted to, and approved by, the RIDEM before implementation. In some instances, public notice may be required. Work Plans shall be submitted to RIDOT for review and approval before submission to the RIDEM or other state, local or federal agency. Investigations and Work Plans shall be consistent with all applicable Environmental Laws. Qualified and licensed professionals shall prepare the Work Plan as may be required.

In addition to all regulatory RIDEM Regulatory Requirements, a Work Plan for Optional Investigation shall also contain, at a minimum:

a. DB Entity’s plan and schedule for characterization of all areas of the Site and Project activities where CM may reasonably be expected to be encountered
b. Sampling and Analysis Plan describing sampling locations and methods; media to be sampled; laboratory analyses, methods and quantification limits
c. Investigation schedule
d. Site security measures
e. Location and layout of work zones, storage areas, and decontamination areas

f. Management of investigation derived waste (IDW) in accordance with the RIDEM IDW policy
g. QA/QC Plan procedures

4.6.3. **Applicable Rules and Regulations**

4.6.4. **Management of CM**

CM may be subject to the reporting requirements set forth in the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the "Remediation Regulations" – DEM-DSR 01 93, as amended). In addition to notification, additional investigation and/or remediation in accordance with the Remediation Regulations may be required to comply with the Remediation Regulations and/or to properly identify, manage, recycle and/or dispose of the various CM. With respect to construction dewatering, the discharge of pollutants to Waters of the State of RI is prohibited unless in accordance with the terms and conditions of a RIPDES permit issued in compliance with the Construction General Permit. Therefore, if contaminated dewatering activities are required, a RIPDES Remediation General Permit (RGP) will be applicable, and certain application, compliance, and reporting requirements will apply. Management of CM

All CM encountered during the Project shall be managed in accordance with applicable Environmental Laws, Environmental Approvals, the Contract Documents, RIDEM Rules and Guidance, the CM Management Plan and other plans prepared under this Section.

The DB Entity shall prepare a Contaminated Media Management Plan (CMMP) that provides RIDOT with a uniform, cost-effective, time-sensitive and environmentally sound methodology for the management of CM. The CMMP shall be sufficient in scope to support Project design and construction requirements. The CMMP shall be consistent with the RIDEM Remediation Regulations and all other applicable laws, rules and guidance. Qualified and licensed professionals shall prepare the CMMP as applicable.

In addition to the requirements of the Remediation Regulations and any other state, federal or local laws and regulations and guidance, the CMMP shall also incorporate the following goals and objectives:

a. Minimize the generation of CM requiring off-site management. Maximize the reuse of excavated soils within the limit of work if allowed by RIDEM.

b. Establish a cost-effective waste management hierarchy for the beneficial reuse, recycling, or treatment of contaminated media requiring off-site management.

c. Establish cost-effective environmental compliance with all environmental laws, including RIDEM's Remediation Regulations, with the goal being receipt of a Letter of Compliance (LOC) from the RIDEM under the Remediation Regulations, or other applicable closure documentation from other state, local or federal environmental regulations;

d. Provide effective control of additional costs required for CM characterization
(e) The DB Entity shall have CM analyzed by a qualified test facility, as required. The cost of preparing and implementing the CMMP is included in the Price.

4.6.5. **Schedule for Submittal of Work Plan and CMMP**

Within ten (10) days after Award, DB Entity shall submit a schedule that sets forth the time frames for completion of the CMMP, and any Work Plan for Optional Environmental Investigation.

4.6.6. **Discovery and Management of Unexpected Contaminated Media**

Upon discovery of unexpected contaminated or potentially contaminated media, the DB Entity shall immediately stop work and notify RIDOT so proper assessment and response actions in accordance with state, federal and local law can be completed. The DB Entity shall undertake all actions required by state, local and federal environmental laws and regulations, and in coordination with RIDOT, to properly manage, remove and recycle or dispose of CM, and to achieve the objective of regulatory site closure. All Response Actions shall be implemented under the direction of qualified and licensed professionals engaged by the DB Entity.

During construction of the Project, the DB Entity shall undertake all reasonable steps consistent with the CMMP and applicable environmental laws and regulations, including design modifications and/or revisions to construction techniques, to avoid excavation or dewatering in areas with CM. The DB Entity shall afford RIDOT the opportunity to inspect sites containing CM before any action is taken that would inhibit RIDOT's ability to ascertain the nature and extent of the CM.

4.6.7. **Qualifications and Protection of Personnel Responsible for Handling CM**

The DB Entity shall have a qualified environmental professional (licensed as applicable) available to the Project at all times who is responsible for the proper management, transportation and disposal, reuse or recycling of CM. No environmental investigation shall be conducted outside the limit of work without specific written authorization of RIDOT, and RIDEM, as applicable.

All DB Entity personnel handling hazardous and harmful materials shall be trained, experienced, certified and enrolled in a medical surveillance program typically required for workers handling CM including, but not limited to, OSHA HAZWOPER and OSHA corresponding industry standards. The DB Entity shall ensure that all certifications, licenses, authorizations and approvals are current and valid through the duration of this Contract. The DB Entity shall make all workers on-Site aware of the potential CM to which they may be exposed, shall limit exposure to CM, and provide all necessary equipment to protect workers from exposure. The DB Entity shall maintain records of all incidents and notify RIDOT and appropriate state authorities in a timely manner.

4.6.8. **Compensation for CM Management, Transportation and Disposal**

Compensation for CM Management, Transportation, and Disposal shall not be allowed unless the DB Entity demonstrates to RIDOT’s satisfaction that the costs incurred in management of CM were (a) consistent with the goals and objectives of the CMMP and any state, federal or local environmental approvals, laws or regulations; (b) could not have been avoided by reasonable design modifications or construction techniques; and (c) managed utilizing the most cost-effective approach allowed by regulation as applicable to the CM being managed. Upon such demonstration, the DB Entity shall be entitled to compensation in accordance with the RIDOT Standard Specifications for Extra Work and Differing Site Conditions.

Notwithstanding any other provision of this Contract to the contrary, no compensation for CM Management shall be allowed for costs that arise out of or are related to management of materials containing CM at concentrations below those requiring reporting or special handling/disposal under environmental laws and regulations; any such cost shall be included within the Price.

4.6.9. **CM Spills or Other Releases Caused by Contractor**

Any releases or spills of CM including reporting, assessment, containment and remediation expenses that result from (a) release(s) attributable to the negligence, willful misconduct, or breach of contract of the Contractor or of any of its officers, agents, employees, subcontractors, and visitors; or (b) release(s) elsewhere by the Contractor or any of its officers, employees, agents, or

subcontractors regardless of the cause of the release of CM, shall not be included in the Price and shall not be recoverable.

4.6.10. **Environmental Approvals Relating to CM Management**

It is the responsibility of the Contractor to obtain all Environmental Approvals relating to CM management, transportation and disposal including federal and state surface water and groundwater treatment and discharge permits and permits for recycling or reuse. The Contractor shall provide RIDOT with complete documentation, plans, applications and other filings required by state, federal or local Environmental Agencies necessary to support any application for approval (including, but not limited to plans, details and supporting documentation). Contractor shall be solely responsible for compliance with such Environmental Approvals and applicable Environmental Laws, including those governing the preparation of waste profiles, waste manifests and bills of lading as described in Section 3.20.9. RIDOT assumes no responsibility for time, costs, or fees associated with regulatory agency review and approval. RIDOT will be considered the generator of CM from the Project except as specified in the following sentence. The Contractor shall be considered the generator of any CM requiring off-Site disposal which results from (a) release(s) attributable to the negligence, willful misconduct, or breach of contract of Contractor or any of its officers, employees, agents, subcontractors, or visitors; or (b) release(s) elsewhere by Contractor regardless of the cause of the Release.

4.6.11. **Materials Brought to the Site by Contractor**

The Contractor shall be solely responsible for (a) compliance with all Laws applicable to all materials (hazardous and non-hazardous) brought onto the Site by it or any of its agents, officers, employees, visitors, and subcontractors; (b) use, containment, storage, management, transport and disposal of all CM in accordance with this Contract and all applicable Environmental Laws and Environmental Approvals; and (c) payment of all penalties, expenses, costs, damages (including to natural resources, property or persons), and liability arising out of or related to such CM

4.7. **Health and Safety Plan**

The Project Management Plan shall include a Site-Specific Health and Safety Plan (SS-HASP), prepared in accordance with FTA, RIDOT and Industry Standards. The DB Entity shall be solely responsible for implementing and maintaining the SS-HASP and ensuring that the personnel are fully trained and supervised in accordance with applicable state and federal rules and regulations, and with respect to the SS-HASP. DB Entity shall take all reasonable precautions and be solely responsible for the safety of, and shall provide protection to prevent damage, injury or loss to (a) all employees of DB Entity and its Subcontractors performing the Work and other persons who are on Site or would reasonably be expected to be affected by the Work; (b) the Work and materials and equipment to be incorporated therein; and (c) all other property on, adjacent to, or near the Site.

4.8. **Environmental Mitigation**

Environmental Mitigation may be required depending on the final design prepared by the Design-Build (DB) Entity. If alterations are proposed to freshwater wetlands, flowing bodies of water or other regulated area, mitigation may need to be provided by the DB Entity as required by CRMC/DEM Rules and Regulations. The cost of providing all mitigation required shall be included in the Design-Build Lump Sum price.

Section 5. Utilities

5.1. General Statement

There are many existing utilities running through the project, including water, sewer, electric, gas, communications, and others. The BTC documents and all other documentation reflect the early coordination process undergone by the State. The BTC describes known utilities identified within the project limits and are based upon limited investigations and are not guaranteed. The DB Entity bears full responsibility for ascertaining the existence and exact location and size of all Utilities within the Project Limits.

The State will administer all utility agreements and contracts with Utility Owners/Agencies utilizing the States internal utilities section and will execute all contracts as per the Rhode Island State Statutes, Chapter 24-8.1 Relocations of Utility Services and in accordance with Federal Regulations 23 CFR § 635 and 23 CFR § 645. All utility work required by the utility companies to be performed by the DB Entity is to be included in the DB Entities cost proposal. The work performed by the DB Entity, as included in the cost proposal, shall be clearly noted in a Utility Matrix that shows the division of work between work by the utility and the DB Entity's responsibility. Work performed by the utility company will be reimbursed to the utility company by RIDOT through separate agreements. The State will pay all utilities directly. The State will be responsible for checking and verifying material quantity and labor hours submitted by the Utility Companies for reimbursement.

5.2. DB Entity Responsibilities

The DB Entity shall coordinate with the State regarding any Project activities that may affect the services or facilities of a private, state or municipal utility entity. The DB Entity will be responsible for coordinating with the State and utility owners to arrange for required utility relocations on the Project.

The DB Entity shall meet with the State and all owners of affected utilities within thirty (30) days from the award date for the purpose of briefing such utilities on proposed construction schedules, detours, etc.

Permits may be required to work in the vicinity of existing utilities. It will be the responsibility of the DB Entity to obtain any such permits sufficiently in advance of the work's commencement. Any costs related to acquisition of utility permits will be borne by the DB Entity.

The DB Entity shall provide a minimum of sixty (60) days' notice to the State for notice to any utility owner whose infrastructure will require relocations. If utility assets are damaged by the DB Entity, it shall notify the affected Utility Owners and the State, and assume any costs related to the repair, or liabilities associated/ resulted from the damage.

The DB Entity shall not be held liable for mismarked utilities resulting in damage.

The DB Entity shall ensure any utility work complies with the latest "Buy America" provisions.

5.3. Ascertaining the Location of Utilities

The utilities shown on the BTC survey are based on limited investigations and are not guaranteed to be accurate or comprehensive. The DB Entity bears full responsibility for ascertaining the existence and exact location and size of all utilities on the Site.

5.3.1. Existing Utilities Known to the State

The BTC documents and all other documentation reflect the early coordination process engaged in by the State. The DB Entity will be responsible for confirming all existing conditions in the field prior to commencing work.

The following is a list of utility owners with facilities on the Site and those that are likely to be affected by the construction, as determined during the preliminary investigations by the State. Additional utilities may be affected by certain Project activities depending on the final design and the construction methods chosen by the DB Entity.

EXHIBIT A: UTILITY AND AGENCY CONTACT LIST

ORGANIZATION	CONTACT	CONTACT INFORMATION	MAILING ADDRESS
Providence Water Supply Board	Seth O'Connor Engineer	Phone:401-521-6300 Ext. 7222 Email: setho@provwater.com	125 Dupont Drive Providence, RI 02907
National Grid Gas	Kelly Chadwick	Email: Kelly.chadwick@nationalgrid.com	Reservoir Woods 40 Sylvan Road 3rd Floor, West Wing Waltham, MA 02451-1120
National Grid Electric		Email: Maps&Records-NE@us.ngrid.com	
Siena Engineering Group, Inc. (AT&T)	Hayleigh Walker-Kurland Project Coordinator	Office: (781)221-8400 x7023 Email: Hayleigh.Walker@sienaengineeringgroup.com	50 Mall Road, Suite 203 Burlington, MA 01803
Verizon		Email: mari-ugrecordrequest@verizon.com	85 High Street Pawtucket, RI 02860
CoxCom, LLC	David Velilla Right of Way Agent II	Office: 401-615-1284 Fax: 401-615-1421 Email: Dave.velilla@cox.com	9 J.P. Murphy Highway West Warwick, R.I. 02893
Providence DPW	William Bombard, P.E. Chief Engineer, Engineering Division	Office: (401) 680-7500 Email: WBombard@providenceri.gov	700 Allens Avenue Providence, RI 02905
Providence Fire Department	Chris Moura, Underground Foreman	Cell: 401-996-4022 Email: Cmoura@providenceri.gov	1 Communications Place Providence, RI 02903
Crown Castle Fiber	Nick Belinsky, Utility Coordinator Fiber Records	Phone: 724-416-2449 Email: Nicholas.Belinsky@crowncastle.com	1500 Corporate Drive, Canonsburg, PA 15317
Century Link	Renoy Thomas	Email: Renoy.thomas@centurylink.com	Tulsa, OK 74103
East Providence GIS Department	Karen Lanoue,	Office: 401-435-7703 x 11132 Email: KLanoue@cityofeastprov.com	

ORGANIZATION	CONTACT	CONTACT INFORMATION	MAILING ADDRESS
Zayo Group	Neil Bresnahan OSP Project Manager	Office: 781-760-3034 Email: Neil.bresnahan@zayo.com	4 Powder House Road Medfield, MA 02052
Enbridge/Algonquin GAS	Kathy M. Aruda,Advisor Lands & ROW	Office: 508-938-7728 Email: Kathleen.aruda@enbridge.com	8 Wilson Way, Westwood, MA 02090
Kinder-Morgan/Tenneco Gas	David R. Wood Project Manager – Ops	Cell: 413-530-7117 Office: 860-763-6005 Email: David_Wood@kindermorgan.com	8 Annigina Drive Enfield, CT 06082
Narraganset Bay Commission (NBC)	Michael Caruolo, P.E., Interceptor Maintenance Manager	Email: mcaruolo@narrabay.com Office: 401-461-8848 x357 Cell: 401-479-7808	One Service Road Providence, RI 02905

5.3.1.1. **Department of Transportation Electrical**

The State maintains electrical services on the Site that feed power to the bridge, roadway lights, VMS and traffic signal controllers. The electrical requirements for this Project generally include maintaining the existing electrical systems and the installment of additional new electrical power systems for newly installed lighting equipment.

The DB Entity will be responsible for the design, detailing and construction of such facilities.

5.3.1.2. **Electric Distribution**

The DB Entity will coordinate the BTC design with these facilities. National Grid – Electric maintains several electrical services within the project limits which feed power to roadway lights and traffic signal controllers.

Throughout the life of the Project, the DB Entity shall be responsible for maintaining power and for any relocation of the electric feeds related to the construction of the Project. The DB Entity shall perform its own investigation of the utilities to be relocated and maintained. The DB Entity shall notify National Grid – Electric in advance of any intended relocation of services or related electrical facilities.

All services shall meet NEC, NESC, and National Grid – Electric guidelines and practices.

5.3.1.3. **Water**

The DB Entity shall coordinate with Providence Water Supply Board to identify constraints with respect to the temporary decommissioning of water lines to facilitate construction, if required.

5.3.1.4. **Cable TV**

Cable television services within the project limits are primarily provided by COX. There are facilities located within the project limits that may require relocation and/or support to maintain.

5.3.1.5. **Telephone**

Telephone services are primarily provided by Verizon. There are facilities located within the project limits that may require relocation and/or support to maintain.

5.3.1.6. **Gas**

Gas services within the project limits are primarily provided by National Grid Gas. There are facilities located within the project limits that may require relocation and/or support to maintain.

5.3.1.7. **Sewer**

The Narragansett Bay Commission (NBC) has underground combined sewer overflow (CSO) and drainage facilities within the project limits. The DB Entity shall coordinate with NBC on any modifications impacting the CSO and/or drainage. It is anticipated that approximately 400 linear feet of existing brick CSO and/or drainage facilities, owned by NBC will require lining as part of this Project. The cost of this work shall be included in the DB Entity's total Lump Sum price for the Project.

5.4. **Special Requirements for Commencement of Work near Utilities**

The DB Entity shall give special attention to the placement of cranes and to the paths of delivery vehicles and equipment within the project limits.

The DB Entity shall provide the Utility companies with a detailed description and plans for the proposed crane placement, including any placements that may be shown as part of the BTC, and the proposed path of delivery vehicles and construction activities within the Project limits for review and comment. The DB Entity shall demonstrate to the State that all utility company concerns, and comments have been addressed prior to the commencement of construction activities involving heavy equipment or delivery vehicles within the Project limits.

The DB Entity shall comply with the "Dig Safe" requirements.

5.5. **Meetings and Cooperation with Utility Owners**

The DB Entity shall coordinate and hold meetings with the affected Utility Owners that are necessary in order to accomplish the Work (including obtaining information, coordination of scheduling, design review, inspections, approvals and acceptances). The DB Entity shall notify the State of all utility coordination meetings and shall not conduct a meeting without a State representative present. The DB Entity shall copy the State in all correspondence with the Utility Owners related to the progress of the project.

The DB Entity shall immediately notify the State if the DB Entity becomes aware that the Utility Owner(s) is not cooperating in providing needed work or approvals. The State agrees to use its reasonable efforts to assist the DB Entity in obtaining the cooperation of the Utility Owner(s), but such assistance shall not be deemed to relieve the DB Entity of its sole and primary responsibility for the satisfactory compliance of its obligations set forth in the contract documents. The DB Entity shall incorporate all utility phases of construction into the overall work schedule. No additional time or compensation will be provided resulting from delays due to utility coordination and staging.

The DB Entity shall be responsible for all work associated with progressing work, maintaining schedule, and resolving conflicts for the temporary and/or permanent relocations of the impacted utilities.

The DB Entity shall utilize a single dedicated person responsible for managing all utility coordination. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the DB Entity's proposal. The DB Entity shall notify the State in writing of any change in the identity of the Utility Coordination Manager. The Utility Coordination Manager shall have the following knowledge, skills, and abilities:

a. Knowledge of the State plans production process and utility coordination practices,
b. Knowledge of State agreements, standards, policies, and procedures.

If the DB Entity anticipates that any utility work will need to start prior to the first schedule submission required by scheduling provision included in the Contract, the DB Entity shall present that information at the pre-construction conference in the form of an Initial Schedule detailing when each early utility activity is required to start, or at the time of the initial schedule submission as required by the Contract documents, whichever is earlier.

The DB Entity's Utility Coordination Manager shall be responsible for managing all utility coordination, including, but not limited to, the following:

a. Ensuring that all utility coordination and activities are conducted in accordance with the requirements of the Contract Documents.
b. Identifying all existing utilities and coordinating any new installations.
c. Reviewing proposed utility permit application packages and recommending approval/disapproval of each permit application based on the compatibility of the permit as related to the DB Entity's plans.
d. Scheduling and attending utility meetings, preparing and distributing minutes of all utility meetings, and ensuring expedient follow-up on all unresolved issues.
e. Distributing all plans, conflict matrices and changes to affected Utility Agency/Owners and making sure this information is properly coordinated.
f. Identifying and coordinating the execution and performance under any agreement that is required for any utility work needed in with the Design-Build Project.
g. Resolving utility conflicts.
h. Obtaining and maintaining all appropriate "*Dig Safe*" tickets.
i. Performing Constructability Reviews of plans prior to construction activities with regard to the installation, removal, temporary removal, de-energizing, deactivation, relocation, or adjustment of utilities.
j. Providing periodic Project updates to the State Project Manager and Utility Office as requested.
k. Coordination with the State on any issues that arise concerning reimbursement of utility work costs.

The DB Entity shall be responsible for all work associated with or necessitated by the need to continue expeditious Project completion despite the presence of or conflicts with utilities on the Site.

5.6. **Avoiding Relocations**

The location of utilities and the potential effects on the Project of utility relocations shall be considered by the DB Entity, with the following goals:

a. Avoiding relocations
b. Protecting the utility in place to the extent practicable, if a relocation is not reasonably avoidable
c. Minimizing potential costs and delays related to relocations.

5.7. **Scheduling and Cost Risks**

The DB Entity shall be solely responsible to communicate to affected utilities and to the State any changes or alterations that the DB Entity proposes to make regarding utility relocations contemplated in or necessitated by the BTC. In addition, the DB Entity shall also be responsible to communicate to those parties any changes or alterations that it proposes to make regarding the proposed construction staging, insofar as they might affect the timing of utility relocations.

In the event of any changes to the staging or scope of utility relocation work contemplated in or necessitated by the BTC, it shall be the DB Entity's responsibility to mitigate any negative effects that

those changes might have on the Project progress or schedule; and the State will not grant additional payment or Contract time to the DB Entity in connection with those changes. This includes effects on the meeting of Project milestones with related incentives or liquidated damages.

5.8. **Utility Work Prior to Schedule Submission**

If the DB Entity anticipates that utility work will need to start before the first submission of a schedule required by the Contract, the DB Entity shall inform the State of the relevant facts, providing an Initial Schedule detailing when each early utility activity is required to start either (1) at the pre-construction conference, or (2) at the time of the initial schedule submission required by the Contract, whichever is earlier.

Section 6. Right-of-Way

6.1. General Statement

There have been no right-of-way acquisitions included in the BTC or acquired by the State to date. The State anticipates easements and/or acquisitions are required to construct the Project including the Waterfront Drive Off-Ramp and to modify the interchange at Gano Street and the Gano on and off ramps to and from I-195 westbound. In addition, easements and/or acquisitions for construction access or temporary work zones may be required. The DB Entity shall evaluate and verify the right-of-way limits shown on the survey and on the BTC plans are adequate for completion of the Project prior to submitting its proposal. Any proposed acquisition of property, easements, or acquisitions for construction (permanent or temporary) within the project limits shall be performed in accordance with the UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION FOR FEDERAL AND FEDERALLY ASSISTED PROGRAMS, 49CRF, PART 24.

Should additional permanent property acquisitions or temporary property rights be deemed necessary by the DB Entity and the State for the construction of the work at the site, the State will engage its staff to acquire the pertinent property acquisitions or rights with support from the DB Entity as required. The DB Entity agrees to the condition, through its submittal of the Proposal that the State cannot guarantee a timeframe for the acquisitions or rights and shall not be liable for time impacts or increased costs to the project related to additional acquisitions or rights. The DB Entity also agrees, through submission of the Proposal, any additional costs for the preparation of right-of-way documents necessary to effectuate the acquisition of additional right-of-way or property rights shall be the responsibility of the DB Entity at no cost to the State.

The DB entity shall not trespass on any private property where there is no permanent or temporary easements obtained by the State. Should the DB Entity acquire any additional property rights (such as lease or license) for its convenience during construction, including but not limited to for storage and/or staging areas on or off the site, it shall provide the State with copies of said agreements prior to impacting or occupying property. These agreements will be subject to review and approval by the State. The DB Entity shall ensure that all the conditions included in these agreements are met prior to the final acceptance of the Work. As required by the Contract and the RFP, the DB Entity shall defend and indemnify the State for any trespass and/or damage claims brought by any third parties related to the DB Entity’s actions on or against private property.

Section 7. Project Schedule Requirements

7.1. General Statement

The Design-Build (DB) Entity shall be required to implement and maintain an integrated schedule management and controls program from the submission of the Proposal through Construction Completion. A Critical Path Management (CPM) Schedule shall be developed and maintained and be the DB Entity's primary tool to organize and communicate their plan for the timely completion of the Project. General Requirements

7.1.1. General Requirements

The DB Entity shall ensure that all schedule submissions comply fully with the requirements specified herein; are both timely and accurate throughout the life of the Project; and reflect the requirements of all Permits, the RFP, Proposals, and Final Designs. The Schedule will be used by RIDOT and the DB Entity for the following, as well as those stated in these Specifications:

a. To reflect the DB Entity's plan to execute the Project and meet the Milestones and Completion Dates.
b. To identify the Critical Path and its specific activities.
c. To identify any changes in the design development or proposed work that differs from the Specifications, Proposal, etc. (i.e., additional early releases, alternate phasing, or Value Engineering Proposals).
d. To document the actual progress of work contemporaneously during the Project and evaluate the time impact of changes in the work.
e. Allow the Project Team the opportunity to seek ways to minimize delays and communicate most current Design, Submittals, and Construction priorities.
f. Allow RIDOT the opportunity to mitigate the impact of unforeseen events.
g. To enable RIDOT to track and prioritize the review of Design Submissions, Permits, Shop Drawing, RFIs, etc.
h. To evaluate resource requirements of the DB Entity, State, and Consultants.
i. To coordinate the work of third parties including Utilities etc. into the sequencing of the Contractor's work where necessary.
j. The primary decision-making tool of the Project Team.

RIDOT may withhold partial or full progress payments if schedule submissions are overdue or not accepted.

Float is not for the exclusive use or benefit of either RIDOT or the Contractor. It is an expiring resource available to all parties, acting in good faith, as needed to meet any Contract Milestone(s).

7.1.2. Required Submission

RIDOT requires the DB Entity to submit the following schedule submissions by the dates listed below: **Schedule Meetings/Submission**	**Due Date**
Proposal Schedule	With Proposal
Resume of Dedicated Project Scheduler	*3 Calendar Days
Schedule Kick-Off Meeting	*7 Calendar Days
Preliminary Schedule (PS)	*14 Calendar Days

RIDOT requires the DB Entity to submit the following schedule submissions by the dates listed below: **Schedule Meetings/Submission**	**Due Date**
Schedule Planning Session	*21 Calendar Days
Initial Baseline Schedule (IBS)	*30 Calendar Days
Finalized Baseline Schedule (FBS)	*60 Calendar Days
Schedule Updates	1st due 30 CD after NTP, then Monthly until Completion
Short term schedules (3-week look-ahead)	Every Friday from NTP to Construction Completion
Recovery Schedules	As Required by the Specification
Time Entitlement Analyses	As Required by the Specification

*CD-Calendar days after RIDOT's issuance of "Apparent Best Value Determination" Letter

The DB Entity shall use Oracle, Primavera P6 Version 8.0 or most recent for all CPM schedules.

7.1.2.1. Proposal Project Schedule

The Proposal Schedule shall be submitted as part of the Proposal, as defined in Part 1. The Schedule shall be developed in accordance with the technical requirements of this Specification. The Schedule shall include contiguous logic between construction activities, submittals, procurement, Permits, and Design activities. At a minimum, the following shall be included:

Milestones:

a. Award
b. NTP
c. Early Releases (both design and shop drawings/submittals)
d. Design Completion Date
e. Construction Milestones (including interim or tracking)
f. Final Design and Approval
g. Substantial Completion (either the RFP Date or earlier date if proposed)
h. Final Acceptance of Work (either the RFP Date or earlier date if proposed)

Design and Shop Drawing Submissions

a. All stages, components and submissions for the design (including reviews)
b. All Early Release Designs and shop drawings
c. All RIDOT and Third-Party reviews
d. All critical or long lead submittals, reviews, and procurement/deliveries

Construction:

Construction shall be detailed for all work planned within the first two (2) years after NTP. These activities shall have durations no greater than fourteen (14) calendar days, with the exception of curing activities. Work after this can be reflected using summary activities, with durations no greater than thirty (30) calendar days. Activities shall include, at a minimum:

a. Start-Up activities, including mobilization, Dig safe, installation of erosion controls, etc.
b. Construction of any temporary structures or roads
c. Construction/Reconstruction of all ramps and/or intersections
d. Construction/Reconstruction of all structures
e. Major Traffic Shifts
f. All Third-Party Utility works
g. Punchlist and Inspections

7.1.2.2. Project Scheduler

The DB shall retain a scheduler(s) dedicated to the Project, with a minimum of five (5) years of experience on projects similar in size and scope. The scheduler shall be responsible for developing, updating, and maintaining the Schedule. The DB Entity shall submit the resume of the proposed scheduler(s) to RIDOT for acceptance within 3 days of RIDOT issuing the "Apparent Best Value Determination" Letter. Determination of the scheduler(s) acceptability is made at the discretion of RIDOT. The scheduler shall be present at all required meetings, including but not limited to the Schedule Planning Session, Baseline Development Meetings, Schedule Update Meetings, and any other meetings which may affect the Project's Schedule.

7.1.2.3. Schedule Kick-Off Meeting

Within seven (7) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall hold a Schedule Kick-Off Meeting. The meeting shall be held with the DB Entity's Team, including the Scheduler, and RIDOT. The meeting will be held to review the schedule requirements, the DB's Proposal Schedule, and technical scheduling requirements including coding structures, calendars, and resource loading. The intent of the meeting is to address questions regarding the scheduling requirements and promote communications amongst the team in advance of the Preliminary Schedule submission. The DB Entity will be responsible for generating and distributing the meeting minutes for the meeting.

7.1.2.4. Preliminary Schedule

Within fourteen (14) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall submit the Preliminary Schedule (PS) for RIDOT's review. The PS shall include all the requirements of the Proposal Schedule, including detailing all proposed permitting, design, critical shop drawings / submittals / procurements, third party utility, and early construction (construction work planned within the first two (2) years of NTP). The balance of the construction operations (including final inspections, punch list, etc.) shall be detailed with summary activities with durations no greater than thirty (30) calendar days. These activities should identify and separate work per road, per structure, and per phase.

A Narrative shall be submitted outlining the proposed sequence of work, changes from the previously submitted Proposal Schedule, and the following:

a. Identification of the Data Date and Schedule file name.
b. A description of the planned flow of work, identifying all changes from the proposal schedule and key or driving activities/resources for the first two (2) years of construction.
c. Identification of any alternates or substitutions.
d. Contingency Plans - for potential problems that may arise during construction that will affect the overall progress of the Schedule. The Plans will include, but not be limited to the following:
    1. Permit or design impacts

2. Normal adverse weather
3. Severe weather forecast that may impact operations
4. Equipment breakdowns or malfunctions
5. Incident within Project limits, both in waterway and/or roadway
6. Incident involving delivery or removal of material
7. Temporary traffic control equipment breakdown or staff non-responsiveness
8. Emergency repairs to the existing structure
9. Response to natural disaster
10. Key staffing replacement plan due to injury or illness
11. Incident management staging, equipment and response plan for incidents within the Project limits, including MPT crossovers areas.

e. Response to all the Owner's comments. The identification and explanation of all changes made to the Schedule submission (from the previously submitted Schedule including the Proposal Schedule).

To the extent practicable, in developing the Proposal Schedule, the DB Entity shall provide adequate preparation periods for Project activities and review processes in the schedule that will occur prior to the time RIDOT allows the DB Entity to begin physical Project construction.

Within seven (7) calendar days of submitting the Preliminary Schedule, but no later than twenty-one (21) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall host a Schedule Planning Session with RIDOT. At the meeting, the DB Entity will present their Preliminary Schedule including their planned approach to the Project, work to be performed by the DB Entity, subcontractors, third parties, and RIDOT. Additionally, the following will be presented:

a. The planned design approach, anticipated early releases, and timeline for Permitting, and interdependencies with start of construction
b. The planned construction staging
c. Planned crew sizes
d. Summary of equipment types, sizes, and numbers to be used for each work activity
e. Estimated durations of major work activities
f. The anticipated critical path of the Project and a summary of the activities on that critical path
g. A summary of the most difficult schedule challenges anticipated by the DB Entity, and how they plan to manage and control those challenges
h. Project specific calendar assignments utilized and planned to be utilized, as well as their defined workdays/hours.
i. A summary of the anticipated quarterly cash flow over the life of the Project.

This will be an interactive session, and the DB Entity shall answer all questions that RIDOT and their Consultants may have, including comments on the Preliminary Schedule. The DB Entity shall provide a written summary of the information presented and discussed during the session to RIDOT. Following the Schedule Planning Session, the DB Entity and RIDOT shall meet weekly until the Finalized Baseline has been Accepted. The DB Entity will be responsible for generating and distributing meeting minutes for the Schedule Planning Session and weekly schedule meetings.

7.1.2.5. Initial Baseline Schedule

The Initial Baseline Schedule (IBS) is due no later than nine (9) calendar days after the Schedule Planning Session and no later than thirty (30) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter. The IBS shall include all the requirements of the Preliminary Schedule and include corrections and written responses to all questions and concerns identified from the Schedule Planning Session, and review of the Preliminary Schedule. Upon Acceptance (including Accepted as Noted) of the IBS, the DB Entity shall proceed with bid item and resource loading the Schedule, to be submitted as a Finalized Baseline.

7.1.2.6. Finalized Baseline Schedule

The Finalized Baseline Schedule (FBS) is due no later than sixty (60) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter. The Schedule shall address any open comments from the Accepted, or Accepted as Noted, IBS and shall:

a. Bid item load the Schedule: the DB shall allocate the quantity and anticipated dollars to all activities corresponding to the Schedule of Values submitted to RIDOT. The management of this process and monthly reporting shall be outlined in the DB Entity's Management Plan; however, the result of this effort shall be accurate portrayal of the Owner's cash flow requirements for the Project, as well as substantiation of progress payments (with the Schedule Updates).
b. Resource load the Schedule: the DB Entity shall assign the anticipated labor and equipment to all activities as required. These assignments shall be defined by the DB Entity so monthly reports may be generated and comparisons to actuals provided by the DB Entity. The management of this process and monthly reporting shall be outlined in the DB Entity's Management Plan.

The Baseline Narrative shall include:

a. All information from the Preliminary and Baseline Schedule's Narrative, updated if required.
b. A description of the planned flow of work identifying all key or driving resources.
c. Response to all Owner's comments and the identification and explanation of all changes made to the Schedule submission.
d. A summary of planned labor utilization for the Project through Construction Completion. This shall identify the average and maximum number of workers by craft designation on site each month based on the resource loaded Baseline Schedule and the shifts to be worked. Identify actual and potential labor resource limitations.
e. A summary of planned equipment utilization for the Project through Construction Completion identifying each type of operated equipment to be used in the work, the planned quantity of each type of operated equipment utilized each month, and the criteria for mobilizing and demobilizing each piece of equipment to and from the site. Identify actual and potential labor resource limitations.
f. Key constraints and potential problems affecting the Contractor's work shall be identified: construction interfaces with existing plant operations, third parties at the Project site, temporary contractor plants, facilities or fixed equipment planned for use whether within the contract ROW, contract easement, or off-site. Include length of time the plant is to be used, any planned moves, and any potential conflicts that could arise if the plan is not followed.

7.1.2.7. Schedule Updates

Monthly Schedule Update Meetings shall be attended, and Schedule Updates submitted by the DB Entity.

The DB Entity shall attend each meeting with a Draft Schedule Update. Schedule printouts shall include (1) activity progress over the past month and remaining and (2) Critical Path (Float Path 1). The Schedule and Narrative shall be updated with the latest Project status, and copies of both are to be distributed to all meeting attendees. At the meeting, the DB Entity shall be prepared to review all progress, anticipated work planned, impacts or changes to the previous work planned, status/changes to the critical path, and current or anticipated issues. Upon the completion of the meeting, the DB Entity has three (3) days to finalize the Schedule Update and Narrative and formally submit to RIDOT for review and acceptance.

The first Schedule Update Meeting shall be held within thirty (30) calendar days of NTP. The DB Entity will be responsible for generating and distributing meeting minutes for all Schedule Update and Schedule related meetings.

The first Schedule Update (with Narrative and reports) shall be submitted within thirty-three (33) calendar days of NTP. In the absence of an Accepted or Accepted as Noted IBS or FBS, the DB Entity's Proposal Schedule shall be used to generate the Schedule Updates. Once Accepted, or Accepted as Noted, the FBS shall be used to generate the Schedule Updates.

The Schedule Updates generated from the Proposal Schedule are considered the Schedules of Record for the Project. Impacts to the Project Schedule based on incorporating changes from the Accepted FBS will be the responsibility of the DB Entity. Furthermore, as the design develops and no later than one (1) year after NTP, all summary level activities (developed in the FBS to represent remaining construction work planned after the first two (2) years) shall be broken down into detailed activities with durations no greater than fourteen (14) calendar days, with the exception of curing activities. These changes shall be incorporated in the Schedule Updates and described in the respective narratives. Impacts to the Project Schedule based on breakdown of the summary activities will be responsibility of the DB Entity

The DB Entity shall uniquely identify each Schedule Update submittal. Resubmissions shall use the same progress/update number, followed by the suffix, Rev. X, and shall fully address and comply with RIDOT's review comments.

Schedule Update submittals, including resubmissions and revisions, shall include one (1) complete electronic file copy of the Schedule Update in an electronic format acceptable to RIDOT.

Each Schedule Update shall reflect progress for activities to the Data Date and shall forecast the finish dates for in-progress and remaining activities. Updated progress shall be limited to as-built staging and as-built dates for completed and in-progress activities. As-built data shall include actual start dates, actual and remaining durations, and actual finish dates for each activity. As noted previously the breakdown of summary level activities shall be identified in the narrative. All other changes to activity descriptions, original durations, or staging shall be discussed with RIDOT prior to incorporating into the Schedule Updates.

A Schedule Update Narrative shall consist of the following:

a. Identification of the Update Period, the Data Date, and the Schedule file name.
b. Narrative of work accomplished in the past update period and work planned for the next update period. Identify what planned work was not accomplished and why.

c. Narrative of the current critical path (float path 1) to each Contractual Milestone and Completion Date.
d. Identification of any alternates or substitutions.
e. Response to all Owner's comments, and the identification and explanation of all changes made to the Schedule Update submission.
f. Identification of any elective changes and justification for the change. Please note: An elective change is defined as a revision to logic or duration(s) by the Contractor to effectively use labor and resources which have no adverse effect on the Owner or Contract. RIDOT may use this as a request to a change in the Schedule. Mutual agreement on the change shall be attained to implement either request. The Narrative shall contain the following information regarding an elective change:
a. Identification of the activities changed.
b. A description of the scope of the elective change and identification of the advantages and disadvantages of implementing the change.
c. Identification of all driving resources, if any.
d. Identification of key constraints influencing the Contractor's approach to the work.
g. Identification of activities with critical or near critical float (within ten (10) working days of the critical path) that were planned to occur during the Update Period but did not occur or occurred later than the scheduled late start or late finish date, and an explanation of these delays.
h. Identification of delays to activities taking place off the Project site, e.g., submittal preparation, fabrication, and delivery activities.
i. A listing of all activities which have surpassed their planned duration by more than twenty (20) percent, and any justification for maintaining original planned durations for future activities of like work.
j. A summary of any changed plans for labor utilization for the Project, identifying the average and maximum number of workers on site each month. Identification of actual and potential labor resource limitations. A summary of the actual labor utilization used over the past month.
k. A summary of any changed plans for equipment utilization for the Project, identifying each type of operated equipment to be used on the work, the planned quantity of each type of operated equipment utilized each month, and all changes to the criteria for mobilizing and demobilizing each piece of equipment to and from the site. Identification of actual and potential equipment resource problems. A summary of the actual equipment utilized over the past month.

7.1.2.8. Short-Term Construction Schedule

The DB Entity shall provide a Short-Term Construction Schedule that details the daily work activities, including any multiple shift work that the DB Entity intends to conduct, in a bar chart format. The daily activities **shall correspond to the Schedule Update activities** (coding, activity ID, float), but shall be at a greater level of detail to identify work **planned to the hour** (as needed). The Short-Term Construction Schedule shall be submitted weekly. It shall display for the following work within a thirty-five (35) calendar day period: completed work for the two (2) week period prior, and all planned work for the three (3) week period following the Schedule Update Meeting or the end of the previous two (2) week period.

The DB Entity shall be prepared to discuss the Short-Term Construction Schedule, in detail, with RIDOT in order to coordinate field inspection staff requirements, schedule of work affecting abutters, and corresponding work with affected utilities.

7.1.2.9. Recovery Schedules

The DB Entity shall identify and promptly report to RIDOT all Schedule and progress delays during the prosecution of the work. The DB Entity shall promptly take appropriate action to develop a Recovery Schedule in the form of a revised Schedule Update whenever the Project Schedule Update becomes thirty (30) or more calendar days late to any Milestone(s) designated in the RFP. The Recovery Schedule shall be in accordance with corresponding section contained herein. The development and submission of a Recovery Schedule does not relieve the Contractor from continuing with the submission of the Schedule Updates.

The Recovery Schedule shall be submitted within (30) days of the submission of the corresponding Schedule Update [reflecting a Milestone is thirty (30) or more calendar days late]. The Recovery Schedule shall demonstrate a clear procedure for bringing the Project into compliance with a timeline acceptable to the Engineer.

Normal adverse weather shall be anticipated and planned for by the Contractor. Delays due to such weather events are unacceptable. Failure to submit such a Recovery Plan shall provide a basis for future Payment Application withholdings, either in whole, or in part, by the RIDOT.

Recovery Schedule Submissions shall include a Narrative with a comprehensive listing of all activities added to or deleted from the previous Schedule Update (which the Recovery Schedule was generated from), as well as a complete listing of all logic and activity relationship changes that have been made and the reasons why they were changed. No Recovery Schedule will be accepted unless it satisfies the following requirements, at a minimum:

a. All out-of-sequenced logic is corrected or explained to the satisfaction of the Engineer.
b. Actual Start and Finish dates are verified for accuracy.
c. The Schedule accurately reflects the DB Entity’s plan (including accurate logic and durations) for completing the remaining work.

Once a Recovery Schedule is accepted by RIDOT, it shall be used for the next Schedule Update.

Except as otherwise designated by Change Order, no Recovery Schedule or Schedule Update that extends performance beyond any Contract Time and/or Contract Milestone(s) shall qualify as acceptance of an Extension of Time.

7.1.2.10. Time Entitlement Analysis

All requests for an Extension of Time shall be substantiated by the DB Entity’s submitted contemporaneous Schedule Updates that report changes and impacts as they occur

As Schedule Updates are statuses and provided during the Project, the DB Entity will document and include projected impacts that affect progress. These projected impacts will be discussed with RIDOT at the Schedule Meetings, and RIDOT and the DB Entity will agree on how an impact will be projected before final submission of the Schedule Update.

A Project Status Log will be kept for each monthly Schedule Update to track the Contractual Completion Dates and impacts to the Project.

Identifying impacts and agreeing on how they are represented in the Schedule will document and track these issues and provide both RIDOT and the DB Entity with the opportunity to mitigate potential time lost. RIDOT will not be held responsible for impacts / potential impacts that are not identified and substantiated in the Schedule.

The contemporaneous Schedule Analysis allows RIDOT and the DB Entity to review impacts as they occur and provides an opportunity for potential impacts to be mitigated. This Analysis will be used for the negotiation of changes to the Contract, pending the Schedule Updates are Accepted, and the impacts are substantiated.

7.1.3. **Technical Scheduling Requirements**

All schedules shall conform to the minimum requirements, as well as those requirements outlined the DB's Management Plan:

7.1.3.1. Standard Durations

The following standard durations shall be included in all Schedules:

Activities	Durations (calendar days)
Review of Design or Shop Drawings	30
Review of Resubmitted Design or Shop Drawing	14
CRMC Category A Assent Application Review	90
CRMC Category B Assent Application Review	180
RIDEM Water Quality Cert. & RIPDES Application Review	90
NBC Review	60

The following are the minimum durations to be assumed by the DB Entity in their Proposal and Preliminary Schedules, or until Force Accounts have been received by the respective utility and may be incorporated into the Schedule. The Schedule should not represent utility relocations being performed concurrently at the same location, unless the utility companies and RIDOT accept this logic.

Minimum Utility Durations	Durations (months unless otherwise noted)
NGRID – Electric	9
Verizon	6
Fiber Optic	6
NGRID-Gas (Tie-Ins)	3 Days Per Location

7.1.3.2. Basic WBS Structure

WBS Code	WBS Title
PVD.00	Contract Name
PVD.10	Milestones

WBS Code	WBS Title
PVD.15	Summary Activities
PVD.20	Design
PVD.25	RFI's
PVD.30	Procurement/Shop Drawings
PVD.40	Utility/RR & Work by Others
PVD.60	Construction

7.1.3.3. File Naming Standard

Name	Submission
PPS	Proposal Project Schedule
PSX	Preliminary Schedule
BLX	Baseline Schedule
UPXX	Schedule Update
RXX	Recovery Schedules

X = sequential number per name

7.1.3.4. Activity Requirements

All Schedules shall clearly and separately define the progression of work from Bid Opening to Final Completion using separate activities for, at a minimum:

a. Activity ID's
Shall be alpha-numeric using the first six (6) values of the corresponding WBS code as the pre-fix. ID's shall not be greater than ten (10) digits.

b. Activity Codes
The coding structure shall be defined by the DB Entity to allow for organizing/reporting by location, road (including directions), ramp, structure, phase, work type, subcontractor, discipline, responsible party (RESP codes), etc.

c. Activity Descriptions
Shall consist of a verb or work function (i.e. form, pour, excavate, etc.,), object (i.e. slab, footing, wall, etc.), and location (i.e. STA, bridge, pier, or retaining wall number, street, ramp, etc.). There shall be no two (2) activities with the same activity description. Any abbreviations used in the activity descriptions shall be consistent with the abbreviations used throughout the Contract Documents and should be listed therein. The formatting of the activity description in the software shall be left-justified and capitalized.

d. Durations
Shall be limited to:

1. Design & Procurement activities may be expressed in either calendar or working days but limited to ninety (90) calendar days (with the exception of procurement/fabrication).
2. Level of Effort/Summary activities for construction work past the first two (2) years of construction shall be limited to thirty (30) calendar days.
3. Construction activities shall be limited to fourteen (14) calendar days, with a value of work not exceeding fifty thousand dollars ($50,000). There should be a minimal number of activities with durations two (2) days or less and shall be identified for RIDOT's acceptance before their use.

e. Activity Types
Shall be in accordance with:

1. Milestone Activities: Only Finish Milestones that are defined in the Contract's Special Provisions shall utilize these activity types and shall be "Finish on or Before" constraints.
2. Level of Effort (Summary): These are required for the construction operations in the Preliminary Schedule, as well as for reporting in the Baseline.
3. Task Activities: This is the primary activity type. All activities other than Milestone and Summary activities, as defined above, shall be task activities.

f. Activity early and late start and finish dates shall be calculated for each activity based upon the Schedule's Data Date, actual dates, schedule logic, schedule constraints, calendars, original duration, and remaining duration in accordance with the scheduling parameters defined in this section. Actual dates shall be agreed upon by RIDOT.

g. Calendars: The DB Entity shall define all anticipated calendars in the Preliminary Schedule Narrative.

h. Data Date:

1. Proposal Schedule = Public Bid Opening Date
2. Preliminary Schedule = Public Bid Opening Date
3. Baseline Schedule = Public Bid Opening Date
4. Schedule Update = monthly date

i. The logic in the Schedules shall represent the progression of time and the sequence of work performed within the Contract Time. The CPM Schedules shall conform to the following requirements:

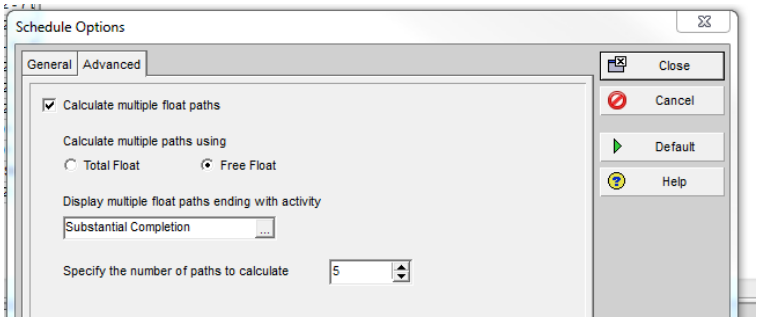
Every activity shall have logically assigned predecessors and successors. Unless otherwise specified, the activity "Bid Opening" shall be the only activity without a predecessor, and "Contract Completion" and each Contract Milestone shall be the only activities without successors.

The use of activity constraints is limited to the "Finish-On or Before" as defined previously, under Milestones. The use of Zero Free Float, Start On, Expected Finish, Mandatory Start, or Mandatory Finish is strictly prohibited.

Activity lag durations shall not have lags (either positive or negative) unless the DB Entity can convince RIDOT that it best represents realistic conditions. Activity lags shall not be used in lieu of logic relationships.

Redundant ties to preceding activities in a sequential series of activities shall be limited to eight (8) percent of the total number of relationships in the Schedule.

Critical Path shall be defined as “Float Path 1,” by Free Float to each Contractual Milestone or Contract Completion.



Out-of-sequence logic shall not be permitted to be included in a submitted CPM Schedule. The Contractor is responsible for identifying, correcting, and updating any out-of-sequence logic in a Schedule.

Float shall be defined as the amount of time between when an activity can start (early start date) and when an activity shall start (late start date). Float belongs to the Project and is a shared commodity between RIDOT and the DB Entity and is not for the exclusive use or benefit of either party. Either party has full use of the float until it is depleted. The float may be claimed by whichever party first demonstrates a need for it, i.e. if the Contract Milestone(s) and/or the Contract Completion Date has been delayed. The DB Entity shall demonstrate this need as required herein.

Not to be Used: Unspecified Milestones or restraint dates; scheduled work not required for the accomplishment of a Contract Milestone; use of activity durations, logic ties, and/or stages deemed unreasonable by RIDOT; delayed starts of follow-on trades; or use of float suppression techniques contrary to the provisions Claim for Delay or Suspension of the Work of Special Provisions. Through the progression of the Project, and as part of the Schedule Update submissions, the DB Entity is obligated to seek ways to minimize delays, and to communicate priorities that relate to the most recent submission of the critical path for the Project.

7.1.4. **Schedule Reviews**

RIDOT will respond to each Schedule within thirty (30) calendar days for Preliminary and Baseline Schedule submissions and fourteen (14) calendar days for Schedule Update submissions. Response by RIDOT will either accept the Schedule or require revision and re-submittal. A Schedule shall be accepted, or revised and resubmitted, only upon written notification of such by RIDOT.

Schedules shall be resubmitted within fourteen (14) calendar days after receipt of RIDOT’s comments.

The DB Entity shall not be relieved from their responsibility for satisfactorily completing the work within the specified Contract Time due to their failure to submit an acceptable Schedule Update.

7.1.5. **Disputes**

As stated in the RFP, all Schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified to provide the greatest possible benefit to the execution of this Contract.

Any dispute concerning the acceptance of a Schedule, or any other question of fact arising under this subsection, shall be determined by RIDOT.

Pending resolution of any dispute, the last Schedule accepted by RIDOT will remain as the Contract's Schedule of Record.

7.2. **Winter Shutdown**

The substantial completion date of November 15, 2025 incorporates the standard winter shutdown period. Schedules submitted as part of the Technical Proposal shall include the standard winter shutdown period. After award of the contract, should the DB Entity request to include working through the winter, this request would be subject to RIDOT discretion and will require review and approval. No lane splits shall be in place during the winter and all lane widths shall comply with TAC# 0359.

7.3. **Determination and Extension of Contract Time for Completion**

It is an essential part of all contracts that contractors shall perform the Work fully, entirely and in an acceptable manner within the contract duration.

The contract duration is based upon the requirements of public convenience and the assumption that the DB Entity will prosecute the Work efficiently and with the least possible delay, in accordance with the maximum allowable working time, as specified in the Contract.

The Contract duration has been carefully considered and has been established for reasons of importance to the State. The Contract duration will be enforced, and it is understood that the DB Entity accepted this concept at the time of the submission of the bid. The timing of the NTP has been taken into account in the determination of the Contract duration and the timing of the issuance of the NTP shall not, by itself, be a reason for a time extension.

An extension of contract time will be granted only if entitlement to a time extension has been clearly demonstrated to the satisfaction of the Engineer by a documented time entitlement analysis, performed in accordance with the requirements of this Section.

7.3.1. **Request for Additional Contract Time**

In response to a request for a time extension, an extension of contract time may be granted for demonstrated delays resulting from only one, or, in the case of concurrent delays, a combination of the following causes:

7.3.1.1. Extra Work

Each extra work order (EWO) proposal shall include an evaluation of the impact of the EWO on contract time, expressed in calendar days. If there is no impact to the critical path as a result of the EWO, the EWO shall indicate this by stating that zero (0) calendar days of additional time is being requested. The need for a time extension as a result of the EWO shall be clearly demonstrated by a documented time entitlement analysis (TEA) performed by the DB Entity in accordance with the requirements of this Section. No Time Extension will be granted for any change that does not impact the current critical path and/or any critical path impact that can be mitigated by means of various recovery options to be presented to RIDOT in a timely manner.

A documented preliminary TEA supporting the EWO proposal shall be submitted to the Engineer as part of the EWO proposal.

7.3.1.2. RIDOT-Caused Delays

If any part of the Work is delayed or suspended by the State, the DB Entity will be granted a time extension to complete the Work or any portion of the Work only if entitlement to this time extension has been clearly demonstrated by a documented time entitlement analysis and a clear impact to the current critical path. State-caused delays shall not include delays to or suspensions of the Work that result from the fault or negligence of the DB Entity.

7.3.1.3. Delays Not Caused by DB Entity Fault or Negligence

When delays occur due to causes beyond the reasonable control and without the fault or negligence of the DB Entity, including, but not restricted to: “Acts of God,” war, whether or not declared, civil war, insurrection, rebellion or revolution, or to any act or condition incident to any of the foregoing; acts of the Government; acts of the State or any political subdivision thereof; acts of other contracting parties over whose acts the DB Entity has no control; fires; floods; epidemics; abnormal tides (not including Spring tides); severe coastal storms accompanied by high winds or abnormal tides; freezing of streams and harbors; abnormal time of winter freezing or spring thawing; strikes, except those caused by improper acts or omissions of the DB Entity; extraordinary delays in delivery of materials caused by strikes, lockouts, wrecks, and/or freight embargoes; a time extension will be granted only if entitlement to a time extension has been clearly demonstrated to have impacted the critical path, only if a presentation of alternative recovery options has been determined to be not acceptable to RIDOT, and only if the delays have been documented by a timely and acceptable time entitlement analysis.

An “Act of God” as used in this subsection is construed to mean an earthquake, flood, cyclone, hurricane, tornado, or other cataclysmic phenomenon of nature beyond the power of the DB Entity to foresee and/or make preparations against. Additional consideration may be given to severe, abnormal flooding in local rivers and streams that has been reported as such by the National Weather Service. Rain, wind, snow, and/or other natural phenomena of normal intensity, based on National Weather Service reports, for the particular locality and for the particular season of the year in which the Work is being prosecuted, shall not be construed as an “Act of God” and no time extension will be granted for the delays resulting therefrom.

Within the scope of acts of the Government, consideration will be given to properly documented evidence that the DB Entity has been delayed in obtaining any material or class of labor because of any assignment of preference ratings by the Federal Government or its agencies to defense contracts of any type.

7.3.1.4. Delays Caused by Public Service Corporations

Municipal Departments or Other Third Parties. If any part of the Work is delayed by public service corporations, municipal departments or other third parties, a time extension will be granted only if entitlement to a time extension has been clearly demonstrated by a documented time entitlement analysis.

7.3.2.**Time Extension Determination**

The following applies to the determination of time extensions:

a. When the DB Entity submits a request for a time extension, placing the RIDOT on notice of a delay due to any of the causes listed, it shall be submitted in writing to the Engineer within fifteen (15) calendar days after the start of the delay. No time extension will be granted if a request for a time extension is not filed within fifteen (15) calendar days after the start of the delay.

   A documented preliminary time entitlement analysis (TEA) supporting the request for a time extension and meeting the requirements of this Section, shall be submitted to the State no later than fifteen (15) calendar days after the request for a time extension is submitted to the State or thirty (30) calendar days after the start of the delay. A documented final TEA shall be submitted to the State no later than fifteen (15) calendar days after the end of the delay. During the time between the preliminary and final TEAs, the delay shall be documented in statuses contract progress schedules submitted in accordance with the requirements of this Section.

b. No time extension will be granted for any delay or any suspension of the Work due to the fault of the DB Entity.

c. No time extension will be granted if the request for a time extension is based on any claim that the originally established contract duration was inadequate.

d. Time extensions will only be granted for delays, including concurrent delays, to activities affecting contract milestones, the contract completion date and/or other critical path activities as demonstrated to the satisfaction of the State by a detailed time entitlement analysis that clearly states the number of calendar days of extra time being requested.

e. The probable slowdown or curtailment of work during inclement weather and winter months has been taken into consideration in determining the contract duration and therefore no time extension will be granted.

f. Any work restrictions related to weather, permit conditions, community accommodation, traffic or any other restriction specified in the Contract or reasonably expected for the particular locality and for the particular season of the year in which the Work is being prosecuted shall be considered in the analysis of each individual time extension and shall not be considered, in itself, justification for an extension of time.

g. Any time entitlement analysis prepared for the purpose of requesting a time extension shall clearly indicate any proposed overtime hours or additional shifts that are incorporated in a cost and resource loaded CPM Schedule. The Engineer shall have final approval over the use of overtime hours and additional shifts and shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of time extensions if it is determined to be in best interest of the RIDOT to do so.

7.3.3.**Disputes**

Any dispute regarding whether or not a time entitlement analysis demonstrates entitlement to a time extension, the number of days granted in a time extension or any other question of fact arising under this subsection shall be determined by the State.

The DB Entity may dispute a determination by the State by filing a claim notice with the State, following the requirements of RIDOT’s internal claims policies, within fourteen (14) calendar days after the DB Entity's request for additional time has been denied or if the DB Entity does not accept the number of days granted in a time extension. The DB Entity's claim notice shall include a time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit

the required time entitlement analysis with the claim notice shall result in denial of the DB Entity's claim.

Section 8. Construction Requirements

8.1. General

Before construction activities may begin for a specific segment or component of the Project, the DB Entity shall have met all requirements for and have received a designation of "Released for Construction" from the State, as well as the other requirements of this RFP related to pre-construction submittals, approvals and notifications. These pre-construction submittals include, but are not limited to, shop drawings, working drawings, testing, schedule and public information.

All design and construction documents shall be prepared using the English system.

The DB Entity shall construct the work in compliance with this RFP, with the following objectives as guides:

a. Attain the highest quality product possible.
b. Keep the Stakeholders informed of the work and use public outreach to reduce congestion.
c. Successful performance of the Design-Build Project.
d. Completion of the Project within the estimated Contract time.
e. Completion of the Project within the Proposed Price.
f. Successful application of ABC technologies.
g. Maximum beneficial use of innovation. Innovate when possible in order to achieve the best results possible.
h. Minimize the detrimental effects of the work on the Transportation System and the neighboring community.
i. Maintain or improve, to the maximum extent possible, the quality of existing traffic operations, both in terms of flow rate and safety, throughout the duration of the Project.
j. Minimize the number of different Traffic Control phases, *i.e.*, number of different diversions and detours for a given traffic movement.
k. Take advantage of newly constructed portions of the permanent facility as soon as possible when it is in the best interest of traffic operations and construction progress and quality.
l. Maintain direct access to adjacent properties at all times, with the exception of areas of limited access right-of-way where direct access is not permitted.
m. Properly coordinate with entities working on adjacent construction projects and on maintenance of existing facilities.

8.1.1. Submittals

All submittals shall be made in accordance with the RFP. Unless otherwise specified, the DB Entity shall seek guidance from State personnel administering the Contract as to the proper recipient(s) of such submittals.

8.1.1.1. Shop and Working Drawings

All Shop and Working Drawings shall be reviewed and approved by the Designer of Record, DB Entity's Lead Designer, Project Manager, Superintendent and Quality Control Manager for Construction and Quality Control Manager for Design prior to submission to the State, as required elsewhere in this RFP.

8.1.1.2. RFI and RFC

The State shall be copied on all Requests for Information (RFIs) and responses between the DB Entity and its designers or other subcontractors and shall be allowed fourteen (14) days to

comment. The DB Entity shall address any comments by the State prior to proceeding with work requiring the RFI.

RFIs to the State shall only come from the DB Entity and the State shall be allowed 14 days from receipt of the RFI to respond.

The State shall be copied on all Requests for Change (RFCs) and responses between the DB Entity and its designers or other subcontractors. After review and response from the responsible party within the organization of the DB Entity all RFCs shall be submitted to the State in accordance with Part 3 of the RFP and the State shall make the final decision regarding the approval or disapproval of the RFC. The State will try to respond to RFC as outlined in Part 3 of the RFP

8.1.2. **Construction Survey**

Construction shall not commence on a given segment of the project until baseline and stakeout are performed in accordance with the requirements of this RFP.

8.1.2.1. Baselines

The construction baselines shall be staked in the field, offset and maintained throughout Project construction. Baseline stations shall be staked at every fifty (50) feet (stations and half-station), point of curves, points on curves, points of tangency, and other locations as necessary. The control shall originate from the Project survey control and be verified by physical features. Record baselines are included on the base survey. The DB Entity shall be responsible for tying any newly created baselines to the record baseline.

8.1.2.2. Construction Survey related to ABC Techniques

Any use of ABC techniques will require additional construction survey efforts in order to conform to the requirements of the "Construction Staking" Section 105.8 of Part 3 of this RFP. For this work, the DB Entity shall use licensed surveyors to perform survey of the constructed bridge substructure and to verify at the time of the pre-assembly of any portions of the superstructure that the superstructure will match the substructure necessities and related plan requirements.

8.1.3. **Issue Escalation/Resolution**

The DB Entity shall have the necessary personnel available at all times to resolve construction issues in order to expedite the construction progress and ensure a quick resolution of Project issues that otherwise would delay and, in some cases, hinder the progress of Project construction. The State representatives shall be kept apprised of all issues and proposed solutions and will be afforded a review of proposed solutions or resolutions prior to their implementation.

Lines of communication between DB Entity personnel and State personnel should always be open, and cooperation in the field shall be treated as being of paramount importance in resolving Project issues as soon as possible.

In the event that an issue cannot be resolved at a certain staff level in a timely manner, either due to its complexity or lack of sufficient authority, the DB Entity and State representatives shall promptly elevate the issue in their respective chains of command, as appropriate and necessary, in order to resolve the issue in as timely and effectual a manner as practicable.

8.2. **Location**

The DB Entity shall have an established, fully staffed field office as noted in Section 108.2 of Part 3 of the RFP. The DB Entity shall provide a field office for RIDOT and Project staff. The DB Entity shall establish the field office within thirty (30) days of the State's order to establish the office. RIDOT strongly recommends that both parties' staff be located together with separation between offices.

The DB Entity shall furnish office furniture, equipment, phone services, computer and all office supplies and maintain a field office for RIDOT and Project staff for 6-8 RIDOT staff members in accordance with the requirements of this RFP.

RIDOT has not identified in the BTC any state-owned property outside of the project limits available for the DB Entity's use for off-site laydown or staging. The DB Entity is responsible for securing any additional off-site areas from RIDOT or from private owners for use as staging and laydown to support their operations. This may require the DB Entity to enter into agreements with third parties for the use of private property for staging and laydown. The DB Entity shall identify in their Technical Proposal areas they have identified as potential off-site areas for staging and laydown and any agreements, executed or pending, with the owners of these properties.

8.3. **As-Built Drawings**

As a condition to Final Acceptance, the DB Entity shall provide to RIDOT the Project's record drawings consisting of one (1) full size (24" x 36") PDF format files and all AUTOCAD files used for the production of the as-built set of drawings. The as-built plans shall depict the final completed Project, including all changes with all of the relevant data showing drainage systems, underground utilities, traffic controls, signing placement, highway alignment and grade revisions, and bridge detail changes. The DB Entity shall also provide other relevant Project data such as bridge shop plans, boring logs and pile driving records in hard copy sets in PDF format for archiving.

8.4. **Contingency Planning**

The DB Entity shall develop contingency plans prior to construction for potential problems that may arise during construction that will have an effect on the overall progress schedule. The plans shall be prepared by an emergency response specialist familiar with bridge construction and shall include, but not be limited to the following:

a. Poor or severe weather forecast that may impact operations
b. Equipment breakdowns, malfunctions or failure, including sufficient additional equipment, parts, supplies, operators and power sources
c. Crane breakdown during set-up
d. Crane breakdown during crane removal
e. Saw cutting machine breaks down
f. Crane breakdown during removal and placement of girders and prefabricated elements
g. Lost or damaged girders or precast during delivery and/or erection
h. Incident involving delivery of material
i. Accident within project limits.
j. Accident involving delivery of girder or prefabricated elements resulting in damaged units
k. Traffic Management Plan implementation equipment breakdown or staff non-responsiveness
l. Beam too high with no shims
m. Fit-up problems with cross frames
n. Bar fit-up problems in closure pours
o. Batch plant breakdown

p. Concrete delivery truck breakdown
q. Closure pour concrete strength not achieved before required time for re-opening the bridge to traffic
r. Construction not complete by the time required for re-opening the bridge to traffic
s. Key staffing replacement plan due to injury or illness
t. Severe weather impacting crane operations, including high wind speeds that exceed crane operating parameters
u. Contingency schedule and plan should delivery of necessary materials be delayed or are missing
v. Contingency Traffic Management Plans for a late opening on Monday morning
w. Temporary pavement marking application in the event of inclement weather
x. Incident within the Project limits, including all streets crossing the highway corridor
y. Obstructions encountered within excavations

Plans should be all-hazards in nature but should also be narrowly tailored and specific to hazards identified that could impact the Project and should consider critical assets or infrastructure in the area, geographic terrain, abutting entities and properties, and/or environmental concerns in the area. Plans should be developed with the involvement of multiple stakeholders. The plans should detail multi-disciplinary actions to be taken throughout the course of an incident from detection to recovery. Plans should also be reviewed with all stakeholders in an appropriate training or exercise forum prior to project commencement.

8.5. **Construction Digital Recording**

DESCRIPTION: This work shall consist of furnishing and installing a mobile camera surveillance system to view and record the project construction. The system shall include two (2) self-powered, rugged, wind-resistant trailers with pressure-sealed cameras for traffic management and work zone monitoring. The cameras shall be mounted to a 42-foot telescoping mast to provide a strategic overview of site.

a. The outdoor camera system shall consist of a tamper and impact resistant enclosure with integrated camera and heavy-duty robotic pedestal to be on a mobile solar powered trailer platform.
b. The camera shall take high-resolution 8-megapixel digital images every 15-minutes and provide live video
c. The camera shall upload both images and video over a wireless cellular modem.
d. The content shall be sent to secure, password protected website with an interface and Online Software features provided by the Vendor as a Managed Service.
e. The system shall operate on 12VDC.

MATERIALS: This work shall consist of furnishing, installing and testing a mobile camera surveillance system that meets the following requirements:

A. Camera: Integrated 8 Megapixel high-definition camera and lens assemble consisting of a charge coupled device (CCD) camera with a remotely controlled focal length lens with the following features:

1.	Imager:	1/2.5" CCD 8 Megapixel
2.	Resolution:	3,264x 2,488 Pixels= 8 Megapixels
3.	Panoramic Resolution:	29,376 x 9,792= 72 Megapixels
4.	Lens:	Zoom 6mm-72mm capable of 12x Optical, 4x Digital
5.	Video Compression:	AVI (Motion JPEG)

6. Auto Features: ISO, Shutter, White Balance and Focus

B. Camera Enclosure:
   1. Built-in aluminum and epoxy power painted weatherproof standard IP66/IP67.
   2. Body constructed from extruded aluminum and die-cast aluminum end-cover plates.
   3. Weatherproof feature is maintained by 2 EPDM-rubber end gaskets between cover plates and 3 cable glands.

C. Pan and Tilt Robotic Base: High-performance outdoor pan/tilt designed to provide steady images in windy environments with the following features:
   1. Pan Range: 360° continuous pan
   2. Tilt Range: +30° to -90° from level
   3. Motor Type: Stepper

D. Overall System:
   1. Camera Enclosure Dimension: 6.9” (175mm) W x66” (168mm) H x 19.4” (493mm) L.
   2. Pan/Tilt Unit Dimensions: 7.0 (178mm) W x 10.5” (274mm) H x 6.4” (163mm) D
   3. Operational Temperature: -10°F to 120°F (-23°C to + 49°C).
   4. Camera Enclosure Weight: 13lb (5.9 kg).
   5. Pan/Tilt Unit Weight: 12lb (5.4 kg).

E. Solar Powered Trailer Platform:
   1. Operational Temp –4ºF to 158ºF (-20ºC to 70ºC).
   2. Dimensions 12’ L x 6’ W x 10’ H (3.66m L x 1.82m W x 3m H).
   3. Region of Operation: Contiguous United States.
   4. Autonomy: 4 days battery backup.
   5. Full size spare tire.
   6. Guy Wires: To stabilize an extended mast and steady the camera shot.

F. Battery Bank:
   1. Charge controller with remote monitoring.
   2. Battery Type: 6 Volt DC deep cycle batteries.

G. Solar Array:
   1. Single crystal (monocrystalline) silicon photovoltaic modules.

H. Communication
   1. Wireless GPS modem EV–DO.

I. Quantity of Cameras: As required by Owner.

INTERFACE AND ONLINE SOFTWARE:

A. Remote Access: Contractor’s System Vendor shall provide an internet-based interface and online software as a managed service, to allow the viewing of all high-definition digital still images captured and stored and live video, from any location with internet access via a secure password protected website.

1. Maintain images on the System Vendor's website for reference available at all times during the life of the project and for not less than 60 days after completion.

B. Online Interface Features:
   1. Software delivered by vendor as a managed service.
   2. Displays company logo and project name.
   3. Capable of viewing live video.
   4. Picture in Picture to control and view live video, while viewing high definition images.
   5. Robotic pan, tilt and zoom control of robotic camera system.
   6. Featuring high-definition panoramic images with a panoramic image comparison tool.
   7. Calendar based navigation system for selecting specific images and panoramas.
   8. Multifunction image browsing.
   9. Pan, tilt and zoom control capability within a high-definition image.
   10. Onscreen button for wiper control to allow remote cleaning of the viewing window
   11. A Multiview screen to view all of the cameras on a project at the same time.
   12. Graphical mark-up tools for detailing and creating overlays on images.
   13. Graphical weather applet displaying ten points of local weather data and 48-hour forecast.
   14. Remote solar monitoring screen displaying the DC amperage output of solar panels.
   15. Remote battery monitoring screen displaying battery voltage, temperature and status.
   16. Remote cellular monitoring screen displaying connectivity, network traffic and modem temperature.
   17. Remote wireless radio monitoring screen displaying connectivity, network traffic and Google Map features including wireless radio locations.
   18. Share image tools: save, print, email and post to message board or mobile devices.
   19. Automated progress reports in Power Point, Open Office and PDF formats.
   20. Map, aerial and satellite view by Google.
   21. Time lapse features include – Instant time lapse play back by day, week, month or year.
   22. Machine to machine self-healing technology that automates maintenance of camera up to 288 times daily.
   23. Account security features include – Four levels of password protection, IP address block /permission and SSL protection of the user login password.
   24. All Images are the copyright of the client and protected on secure servers owned and operated by the system vendor.

All equipment and software including but not limited to the portable trailer, solar panels, batteries, camera, communications systems, video webcaster, software and online interface shall be provided by the same vendor as a complete unit.

CONSTRUCTION METHODS: The Contractor in coordination with the Engineer shall determine the mounting location for each mobile traffic camera trailer. The trailers shall be installed outside of the roadway clear zone or behind protective barrier or guardrail. If the trailers cannot be located outside the clear zone or behind protective devices, the contractor shall provide temporary protective devices in accordance with the latest edition of the AASHTO Roadside Design Guide. The Contractor may be requested to move the trailers up to two times per camera during the construction period by RIDOT. If the trailer needs to be relocated due to Contractor construction activities, it shall not count towards a requested relocation.

The Contractor shall be responsible for all negotiations, fees and agreements with private land owners.

The trailers shall be installed at the agreed locations and made operational and tested 7 days prior to the start of construction. The contractor shall utilize vendor support as needed and perform initial installation and set-up procedures per the vendor's instructions.

INSTALLATION:

A. General:
   1. Install camera system in accordance with manufacturer's printed instructions, State and Municipality codes and requirements and approved submittals.
   2. Install units plumb and level and at proper angle to provide maximum field of view of onsite operations.
   3. Securely and rigidly anchor products in place.
   4. Connect cameras to power.

B. Position camera so that field of view covers intended area of site.
   1. Locate the trailer so that the solar panels have an unobstructed view of the Southern sky.
   2. Locate the trailer so the camera will provide uncompromised visual coverage.
   3. Locate the trailer so that position of sun or man-made light sources will not come into direct contact with field of view of camera at any time during construction.

MAINTENANCE: The Contractor shall clean and maintain the units and equipment for the life of the project for 24-hour operation per the vendor's recommended schedule. The Contractor shall be responsible for all aspects of maintaining a fully operational mobile camera surveillance system from 7 days prior to beginning construction to 30 days after written notification of final acceptance.

SHOP DRAWINGS: The Contractor shall develop and submit shop drawings in accordance with **Subsection 105.02: Plans and Shop Drawings** of the Rhode Island Standard Department of Administration Procurement Regulations.

8.6. **MATERIALS PROJECT SCHEDULE FOR TESTING (PST)**

DESCRIPTION: This work shall consist of the Contractor producing a Project Schedule for Sampling, Testing and Certification of Materials in accordance with RIDOT Materials & Quality Assurance Master Schedule of Testing (MST), latest edition and revisions. The guide is available on the RIDOT website: http://www.dot.ri.gov/about/who/materials.php#master

The Project Schedule for Sampling, Testing and Certification of Materials will indicate clearly the minimum required number of samples, tests and/or certifications required for each item of work indicated in the Project Plans and Documents.

The PST shall be formatted using the "RI Standard Items" and Template Details", both available on the RIDOT website as listed above. The Contractor shall also prescribe a sampling, testing and certification requirement for any job specific item not included in the RIDOT list of standard times and templates.

All tests and records will be kept on file in the RIDOT Project Field Office.

Appendices

Appendix B – BTC, Reference Documents, and Design Criteria

END OF PART 2
TECHNICAL PROVISIONS

APPENDIX B

INDEX: